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STATE BOARD OF HEALTH OF FLORIDA

TWENTY-FOURTH
ANNUAL REPORT

OF THE

State Board of Health
of Florida

1912

APPROVED BY THE BOARD IN ANNUAL
SESSION, FEBRUARY 11, 1913

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State Health Officer of Florida

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PUBLICATION 100

FEBRUARY, 1913

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JACKSONVILLE, FLORIDA

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1913

STATE OF FLORIDA

STATE BOARD OF HEALTH

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LETTER OF TRANSMITTAL

EXECUTIVE OFFICE, STATE BOARD OF HEALTH OF FLORIDA, E. M.
HENDRY, PRESIDENT.

Tampa, Fla., Feb. 11, 1913.

HONORABLE PARK TRAMMELL,

Governor of Florida, Tallahassee, Fla.

SIR: I take pleasure in handing you herewith the 24th annual report of the State Board of Health of Florida, as compiled by the State Health Officer, Dr. Joseph Y. Porter.

First, I would invite your attention to the fact that during the year we have had no epidemic of any serious magnitude. The outbreaks of communicable disease have been few and easily and speedily controlled. It has been a year of quiet, steady development and reflection, so to speak. In September the XV International Congress of Hygiene and Demography, and other important public health meetings were held in Washington. At my suggestion, and I may say, direction, the State Board of Health of Florida was represented at all of them. The incident was cartooned in the October number of "Health Notes." This represented these several meetings as a physician in deep study, at the bedside of a patient. This cartoon might equally well represent the year's development along public health lines in Florida.

Yellow fever, that used to hang like a pall over the state, seems to be receding further and further from us. The probabilities are that before another generation shall have passed away, this disease, alike destructive to business as life, will likewise have had its final obsequies observed and be no more, and that there will be few of us now living to tell of the incidents which made havoc with nerves and individual comfort.

But plague, unlike yellow fever, instead of receding before the march of progress, goes with it. The opening of the Panama

Canal will not only add incalculably to the commercial prosperity of the South, but it will likewise add to its danger. This has been foreseen for several years. Three years ago in the annual report of the State Health Officer, he said: "With the increasing traffic with the South American countries, where plague prevails from time to time, and with the Norway rat as the carrier, and with this rat recognized as a great traveller and the difficulties of preventing him going onto ships, we must realize that each year brings the danger closer and closer home to us." That warning was very timely. Since that time we have seen the disease in Trinidad, in Porto Rico, and in Havana. But thanks to vigilance, and, shall I say, good luck, it has not yet appeared on our coast.

We have had, during the year, smallpox as usual. This is a very instructive disease. It teaches us that, although a disease may be entirely preventable, still we refuse to prevent it, not through failure or neglect on the part of the health authorities, but through opposition to accepting the only known method of prevention. But most of all it teaches, and this should be emphasized, *that protection against smallpox is a matter of individual responsibility.* The legislature of the State of Florida has refused to enact a compulsory vaccination law. That is equivalent to the legislature making official declaration that *protection against smallpox is a matter of individual responsibility.* The State Board of Health is a creation of the legislature, and has no desire to do what the legislature does not want done.

The present management of smallpox, however, is fairly satisfactory. The Board undertakes to *prevent the disease in those that want to be protected, and that without cost to the individual.* But neither the legislature nor the State Board of Health desires to enforce the protection upon those that do not want it. In fact, it is forbidden by a provision of law to attempt to do so.

Not least among the lessons taught by smallpox is the pitiable failure of quarantine in preventing the communicable diseases in spreading from individual to individual. In New York City, a now famous case of an Irish cook was discovered some four or five years ago. This cook, it was found, had never had typhoid fever, but notwithstanding that, was giving off typhoid germs in her excreta. She was called a "typhoid carrier" and was quaran-

ted on North Brothers Island. This was to keep typhoid from spreading in the City of New York. Doctors Anderson and Lumsden, of the United States Public Health Service, following out an investigation along the same line of inquiry, estimated that there were some 390 such carriers of typhoid in Washington. If that is true, and if the same ratio prevails in New York, then there should have been at that time over ten thousand typhoid carriers in New York City, and only one of them undergoing quarantine.

However it may look from the doctor's standpoint, as a business proposition this is hardly acceptable reasoning. A layman can't follow the logic of quarantining one case when ten thousand are going loose, and expect the quarantine to do any good. The same thing is true of smallpox. A certain number of cases are reported to the State Board of Health, but perhaps as many more are not. These latter are never heard of, but they keep the disease spreading. I understand that there were some seventeen hundred cases reported to the State Board of Health during the past year. I understand further that a conservative estimate would show at least seventeen hundred cases that were not reported at all. As a business proposition it is very clear that even though all the reported cases were guarded as strictly as convicts, that the seventeen hundred unreported cases would still be quite sufficient to keep the disease going. It is, therefore, not apparent what is to be gained by quarantining the reported cases, when there are so many unreported cases having no restriction. It would not be an economical administration of the Board's funds—in a word, it would not be a good business proposition to accept and follow.

Quarantine against smallpox, or rather against the half of it that is reported, while the other half goes free, and quarantine against one typhoid carrier while ten thousand others are disregarded, brings us face to face with the larger question of quarantine in general. With all due respect to the doctor, again from the business man's viewpoint, this looks very much like a misappropriation of funds, and the business man is, therefore, tempted to ask: "To what extent is quarantine justifiable?" Isn't this ancient and time honored custom overworked? Where quarantine is maintained at all, it is maintained at great expense, and great inconvenience to the public; all for the intended purpose of pre-

venting disease. When it doesn't prevent it, what justifies the quarantine? As I understand, a year ago practically all of the world, Florida excepted, was quarantining infantile paralysis. Since then I understand that it has been shown that this disease is transmitted by a biting fly, indicating that all previous quarantine against the disease, at whatever cost and inconvenience, was absolutely worthless.

From these and similar considerations, it occurs to me, as a business man, that it behooves the sanitarians of the country to look closely into the matter of quarantine, with the view of abandoning it whenever and wherever it fails to prevent the spread of disease, and thereby relieve the public of great annoyance, and at the same time conserve the health funds, which could be applied where they will better conserve life and lessen suffering.

These views are shared by other members of the Board and the State Health Officer, and will in the future, as they have in the past, dominate the policies of the organization.

The hookworm crusade is progressing. The five years devoted to it have produced results. Not that the state is, or can be expected ever to be altogether free from the disease, but that today there are few people in the state who do not know about hookworm trouble, and who do not know that by applying to the State Board of Health they can get full information as to whether they are infected, and likewise advice about treatment. This, after all, is the object to be attained, for here, as in smallpox, the matter of protection against it is a matter of individual responsibility. *It is not wise for the state to do for the individual what he can and should do for himself.* It is not practicable for the state to protect people from endemic disease against their will, nor is it in keeping with a spirit of state pride.

Malaria is a mosquito carrying disease. It could be eliminated by getting rid of all mosquitoes. This is impossible. But malaria can be reduced by preventing the mosquitoes from biting. This, too, is only possible within certain limits. The mosquito that transmits malaria, bites, as I understand, only at night. Then it follows that, by sleeping under mosquito nets and in screened houses, that malaria carrying insects can be kept out. This will prevent malaria. But here again, no law or organization can make

one do so against his will; here again, it is seen that the matter of protection against malaria is also a matter of individual responsibility.

Typhoid fever, on the contrary, shifts the burden. Here it is not the individual so much at fault as the community. Typhoid fever in this state is largely fly-borne. But the flies themselves are innocent except when they are permitted access to typhoid excreta. The prevalence of typhoid fever, therefore, resolves itself into one of sewage disposal. That is the work of the community. No community can have a low typhoid rate till it addresses itself seriously to the matter. We have assurance, however, that any municipality that earnestly undertakes it, can do so with the full certainty that the "goods can be delivered." Public opinion is beginning to hold the municipality culpable that fails to provide protection to its citizens against this disease.

As has been seen, smallpox, hookworm, and malaria are diseases against which the individual must protect himself; that typhoid fever is a disease the municipality must protect the citizen against. We now come to a disease against which the individual is helpless—and the smaller municipalities, almost—a disease that the state must handle if it is to be handled successfully. I refer to hydrophobia. For the last five or six years this distemper has been on the increase, not only in Florida, but, as I am informed, all over the country. It causes a great deal of anxiety, a great deal of suffering, and it costs a great deal of money. I understand that it can be controlled by a judicious destruction of dogs. This does not mean wholesale destruction. It merely means that a dog tax should be required and imposed by the state, and every dog that is taxed should be tagged, and every untagged dog should be killed. Such a proposition ought to have the support of all dog lovers, for their valuable animals would thereby be protected against the mongrel wanderer which distributes rabies. And it certainly ought to have the support of all who have the interest of innocent children at heart, since they are the chief victims of rabies. It is hoped that the legislature will take cognizance of this, and place Florida in the front rank in the prevention of rabies.

Rabies brings us face to face with veterinary medicine, it being both a disease of human beings and domestic animals. The other

major diseases of domestic animals are glanders, hog cholera, and Texas fever.

The glanders law is defective. In a general way it provides, whenever an animal develops glanders in the state, and it is so diagnosed by the State Board of Health, the animal is to be destroyed by the owner, and paid for by the state. It was recognized that this would put a premium on the practice of unscrupulous horse dealers bringing glandered animals into the state, having them diagnosed and killed and paid for. But the law tries to make ample provision against this, by requiring, as a pre-requisite to payment, that the animal shall have been in the state a year when the disease is developed. But oftentimes the disease, although contracted elsewhere than in Florida, does not develop for two or more years, and so the law is defective in this particular. It was also recognized that the early diagnosis of glanders is imperative, and in order to have any suspicious trouble early reported to the State Board of Health, another pre-requisite is that no owner should be paid for the loss of more than ten animals in any one year.

The law has been operative for four years, and has been scrupulously followed by the State Board of Health. But the legislature has twice enacted special legislation not in harmony with the law. In one instance more than ten animals were paid for, and in the other, animals were paid for that had not been in the state a year.

The law is not quite clear on that point. As a pre-requisite to paying for condemned animals they are to be appraised. The law specifies that the condition of the animal at the time of the appraisal is to be taken into account by the appraisers. Some appraisers take it to mean that the animal is to be appraised as it would be without the disease—that is, its worth without glanders; others, that it is to be appraised as glandered. In the latter case, it is manifestly valueless, for it is to be killed. If it is appraised as valueless there is no reimbursement to the owner. This has occurred once. A very poor widow lost an animal from glanders, and could not recover a cent for it, while in all other instances the animals have been appraised at something, usually \$75.00, which is the maximum to be paid. Here again, the legislature has enacted special legislation. In one instance the animals were all appraised at their value with glanders subtracted, and the owners were re-

imbursed at the appraisement value, although they had previously been paid \$75.00 as the law provides. It is hardly fair to the State Board of Health to be charged with the administration of a law that is so defective that one person will be reimbursed for a glandered animal and another not. Nor is it fair to the Board or to the public, that of all those that lose animals and are duly reimbursed according to law, certain ones should be singled out by the legislature for special reimbursement while others are ignored. It is hoped that a sense of justice to the people and fairness to the Board will prompt the legislature to remedy the defect in the law so that it can be administered to all alike.

The free distribution of hog cholera serum by the Board was provided for by the last legislature. Within certain limits hog cholera serum is a bonanza to stock raisers. But the rationale of it is so intricate, so difficult to understand, and so more than difficult to apply with accuracy, *except by one trained especially for it*, that it is not an economic procedure to send it out free to all who ask. Under the present law, the Board has no choice but to send it to all who ask. I understand it is requested under all sorts of misunderstandings. For instance, sickness gets among a man's hogs, and he thinks it is cholera and asks for serum. It is found to be lung worms instead of cholera. The serum is used, and is more than wasted. It is wasted because it does no good. It is worse than wasted because the owner thinks his hogs are afterward immune to cholera when they are not. Then when true cholera comes he makes no provision against it, because he thinks they are immune. More than that, he thinks the serum is a failure, and disparages its use. Then there are other errors—a man has a herd of hogs that are doing well; he requests the State Board of Health to come down and give them the serum, thinking it like some patent medicine and good for everything. Again, a man will order serum and then not use it. On one occasion a man asked for 1000 c. c. (Twenty dollars worth.) It was promptly sent, with full instructions. Six months later, the Assistant Veterinarian was in a barber shop and saw the bottle setting on a shelf unopened. Upon inquiry, he was told by the barber that the man paid a barber bill with it. Again, people use it, and make no report on it. They are written for reports again and again, and only a small per cent. report. Nearly

six thousand dollars worth of the serum sent out during the year has had no report made on it. From all of which it will be seen that there are so many places where there is an unavoidable leakage, that to send it out free is not an economical procedure. Whatever is gained where it is accurately administered, is lost by errors in other places.

It is, therefore, hoped that you will impress upon the legislature the necessity of revising the law so as to subserve the purpose for which it is intended. This can easily be done; the only thing necessary is to so revise the law as to have the serum furnished, not free, but at actual cost, or even at fifty per cent. of the cost, the State Board of Health paying half; anything to get it off the "free list" so that some check can be had on it.

The Board is especially pleased with the attitude that the Governor has manifested toward tick eradication. It will mean much to the state. The Federal Government is very liberal in its co-operative aid, and Florida is now in position to push the work forward with great rapidity. It has long since passed the experimental stages, and is now known to be not only practicable, but that it can be done at a cost that will make for immediate gains. It will be the policy of the Board to encourage this work among the farmers, and give them all the co-operative aid possible.

Another task laid upon the Board by the last legislature was the treatment of curable crippled children. This has been duly installed and in operation, now a year. During the time, several cripples have been restored and put in the way of developing into useful citizens. The cost is not great. Dr. R. C. Turck has generously given his time and skill as surgeon to this cause without compensation, and deserves the thanks of the Board and of the people at large. We have also had unofficial notice that Honorable E. J. L'Engle has recently given a state fee amounting to five hundred dollars to this cause. This bespeaks a generosity and sympathy that are commendable in the highest degree.

The State Health Officer says that the bacteriological laboratories of the State Board of Health, of which there are three—Jacksonville, Tampa and Pensacola—have all done most excellent work during the year and have rendered assistance to the people by early deciding the character of sickness without having to wait

for more pronounced clinical symptoms. I personally know that this assistance is appreciated by the patient as well as the doctor in attendance, for in my section of the state too much cannot be said in behalf of these institutions and for the valuable aid they are giving.

The State Health Officer points out in his report to the Board that the expenditures of the Board during the year have been large, which is true; but all business men know that with an expansion of work and an increase in volume of operations, whatsoever they may be and in what line of business, comes necessarily an increase in expenses to properly conduct the business. An establishment doing a small business does not require as much clerical assistance to keep records and track of stock as an organization with numerous ramifications of trade jutting into various enterprises, and, therefore, should not cost as much to conduct. This is a homely comparison, but the idea and thought must and will be appreciated by everyone engaged in trade of any magnitude. A cheap service is invariably a poor and expensive service, whether to an individual engaged in personal business, or to a corporation, or to a municipality or state, and my experience has been that to get the best results, experienced help must be secured, and capable men cannot be had in these times on a picayune basis.

I know that the State Health Officer closely scrutinizes all obligations incurred for the Board and watches every expenditure, and that he considers a public office a public trust of the most sacred character, and, having this confidence in his integrity and strict honesty of purpose in administering the monetary as well as the professional affairs of the Board, I speak advisably when saying that no greater economy could have been exercised than has been shown in his management. It must not be forgotten that every legislature since the organization of the State Board of Health, in 1889, has added to the duties and has imposed obligations, the fulfillment of which in a creditable and satisfactory manner unavoidably increased the expenses of the Board and the payment of money. The state, by and through the State Board of Health, now owns in the City of Jacksonville, property, a conservative estimate of value of which is placed by real estate dealers at not less than \$100,000. The City of Jacksonville donated to

the State Board of Health over two acres of land adjoining Springfield Park, which property is valued at \$30,000, and the Board has erected thereon, as was agreed at the time of the gift, a building which cost in construction and equipment a little over \$50,000. Since the completion of the building the property has increased in value at least twenty-five per cent. So it will be seen that some of the funds of the Board have been expended in the nature of a permanent investment, constantly increasing in value.

I could present many facts, figures and arguments, did time permit me and I did not fear to tire you, to emphasize the largeness of the proposition which the Constitution of the State provides for in maintaining a department of public health, an evident intention of the people of the state to conserve the vital energies of its citizens and to anticipate conditions relating to the care of the people in their health as well as in their commercial life. But I have already, I think, indicated what my colleagues and myself consider to be beneficial changes which should be made in the present health statutes, and which I trust may so impress you with their importance that you will make special mention of them in your message to the legislature soon to be convened.

Very respectfully and truly,

E. M. HENDRY,
President, State Board of Health.

REPORT OF THE STATE HEALTH OFFICER

To the President and Members of the State Board of Health of Florida:

The twenty-fourth annual report of the State Health Officer is herewith transmitted for your consideration.

The scope of the report this year differs from that usually followed in past years. It is made short and concise, and omits many discussions of sanitary subjects which have already been considered in the monthly publications of the Board—The Florida Health Notes. Another reason for cutting down the text, and it is thought a reasonable one too, is that lengthy documents, never mind however much of important information they may contain, are not usually read by the representatives of the people, the legislators, for whose attention annual reports of administrative work of State institutions are usually intended, and from whom should be expected, especially in the case of sanitary matters, such consideration as would bring about hearty approval with consequent useful legislation. Therefore, considering that the Health Notes have month by month dealt with propositions relating to the general health of the State and with topics of sanitary interest in such plain language that all readers might understand, it was thought that this year, the Annual Report of the State Health Officer might be confined to an official statement of the transaction of administrative work of the Board, and an account of finances with reports from county representatives and City Health Officers, and that this would sufficiently cover a narrative of operations, and at the same time not prove tiresome reading.

In order that the work of the Board might be more effectively carried out and because it is utterly impossible for the State Health Officer to look after all details of office management as they arise, a division of duties has been decided upon, with the approval of the President of the Board, and the several branches of health work have been placed in charge of assistants, each one of whom is, however, directly responsible to the State Health Officer, and

with whom they are expected to consult and from whom they are to receive instructions. Each of these operative forces has its head and is answerable for the efficiency of its work. The reports from these divisions and other representatives, make a part of the report of the State Health Officer, a careful study of which, when considered with statistical tables will give full information of what the Board has done in sanitary work during the past year.

VITAL STATISTICS.

It is to be regretted that Florida is not in the registration area of vital statistics which the United States Census Bureau prescribes. In order to be thus included fully ninety per cent of the deaths occurring in the State during any year must have been reported and tabulated, and this information the State Board of Health has never been able to accurately secure.

Very early in the life of the Board the legislature, on the recommendation of the State Board of Health, enacted a law requiring that all births and deaths occurring in the State should be reported to the State Board of Health. Various forms were devised and distributed for this purpose, and blanks were prepared so that with very little effort or loss of time those having the knowledge could very easily give the information. The State Board of Health also offered to pay for the reports of births and deaths, not with anything like a large compensation, but sufficiently so to defray postage, and in many instances postage was furnished. Post cards with the desired information on the reverse side were distributed to physicians of the State and others from whom the statute required the reports should come. The effort was fruitless, but not until after persistent attempts to secure the information had failed did the State Health Officer abandon the plan altogether, for without entering into legal proceedings, it was found to be an impossible task. After giving much thought to it, and carefully weighing all attendant conditions connected with the subject, the question of State registration of births and deaths resolves itself into a proposition like this: If the State desires that Florida shall be included in the registration area as laid down by the United States Census Bureau, and the anticipated results from this acquired

knowledge would seem to fully justify the effort and the expenditure of funds, the legislature must authorize the State Board of Health to obtain these statistics in some other way than through the practicing physicians of the State, and the reports must be paid for on a strictly business-like remunerative basis.

Various systems for this purpose are operated in other States, but in each, to whomsoever makes the report, whether designated as clerk or registrar, the compensation is such as will bring satisfactory results. It is estimated that a sum not less than eight or ten thousand a year will be required to secure these reports with any degree of accuracy if the data is to be of value after it is collected and tabulated. It is believed that the information gained will be well worth the effort of the Board and the investment of funds for this purpose. The State Health Officer has not felt warranted in operating any plan other than what the statute prescribed without the sanction of the Board or the authority of the legislature, but it is thought that if the cities of the State having a population of two thousand or over would, by requirement of ordinance, collect reports of births and deaths occurring within the municipality, fully thirty per cent of the population of the State would be thus covered, and those places making satisfactory returns of this nature would then be in the registration area of the United States. At present Florida has only two cities which are in this area—Jacksonville and Key West, but there is no reason why others should not be.

In the absence of any morbidity reports it is impossible to say just how much sickness there was in the State during the past year. Looking at the subject of sickness from the view point of business it is believed that a full knowledge of the extent and character of sickness occurring each week or each month in the State with a statement of length of time lost as a consequence, would be of very material value, for the reason that every day's sickness means a monetary loss to the individual and to the commonwealth; the greater the number of days of physical incapacity for labor the greater the expense to the citizen; for every sickness, however trivial, is a burden upon the individual. He not only loses in his ability to earn, but he depletes his savings already earned by the drain of numerous extra expenses which in health would not have

to be met. Therefore, if morbidity information for the whole State could be had, an increased interest in the subject of prevention of disease and sickness would be stimulated and the information thus gained must be of lasting benefit to the people of the State. The value of birth and death reports is not underestimated. On the contrary, every report from the Executive office since the formation of the State Board of Health, has dwelt upon the importance of this feature of vital statistics. However, the knowledge of factors which disturb the health of the living and cause prolonged suffering with great monetary expense is no less important. So that both morbidity and mortality statistics are equally of great moment to the commonwealth, and repeated efforts have been made to establish a system and to successfully operate it.

GENERAL HEALTH CONDITIONS.

The health conditions prevailing in certain sections of the State during the past year could have been vitally improved and a good deal of sickness, with consequent weakening of working energy and loss of commercial activity have been prevented, had the advice which the Board has lavishly given heretofore been heeded.

The two diseases which have caused much financial waste to the State during the year have been malaria and smallpox.

MALARIA.

Both of these diseases are preventable and because they are preventable it might be justly said, the existence or occurrence of either should be considered a reflection upon an intelligent citizenship. Malaria and smallpox are both types of preventable diseases; smallpox is prevented by vaccination, and not only prevented but arrested, and malaria by destroying the breeding places of mosquitoes and keeping these insects out of houses—especially sleeping rooms. The excessive rainfall of last year in spring and summer, overflowed vast areas of the State, especially in the flat woods section, and in the peninsula portion. Water stood upon the ground from a few inches to one or two feet for miles and miles and for a period of not days but weeks, thus affording a prolific breeding place for the *Anopheles mosquito*—the country mosquito

—the host, when infected, for transmission to man of the malarial parasite. Because of little or no protection taken to guard against infection conveyed by this insect, malarial fevers were more prevalent all over the State last summer and fall than for many years previous. The statements of the representatives of the Board in different sections of the State all lay stress on the more than usual prevalence of malarial disorders during the past year. When it is conservatively estimated, and on very good authority, that about 40,000 persons annually suffer from malaria in this State, which means that a cash loss of about \$400,000.00 is sustained in time, labor lost and other expenses incident to sickness, not to mention an additional loss of two to four hundred lives, which, if a life can be placed on a monetary basis of \$2,000.00, means from four to eight hundred thousand dollars more—it can be understood what the sacrifice to the State is from this disease, and what a drain this sickness, which can be prevented, is upon the working energy of the State.

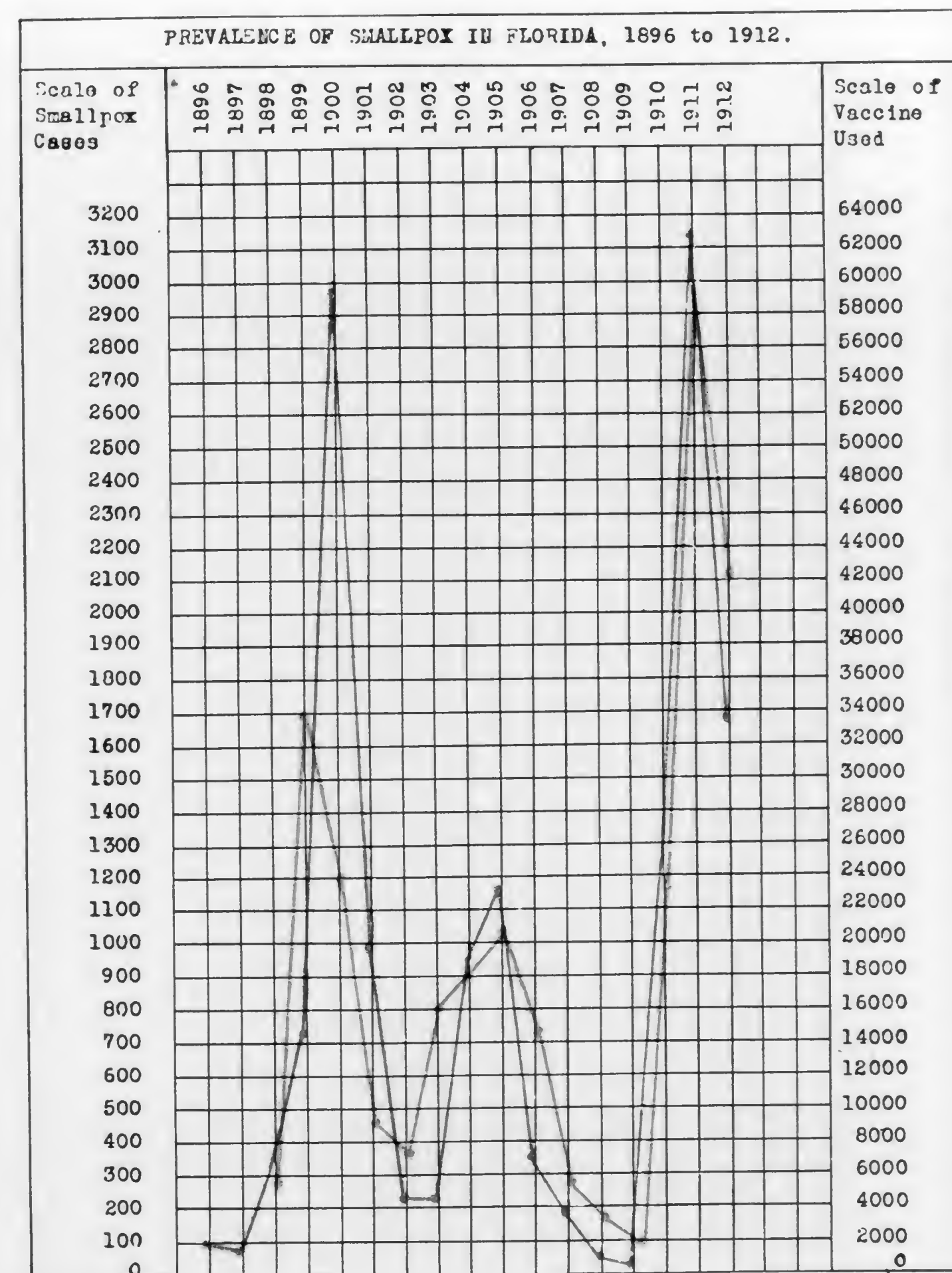
SMALLPOX.

The same process of reasoning can be applied to smallpox, another preventable disease which during the year occasioned annoyance and expense to the State and discomfort and worry to many citizens. There were seventeen hundred and thirteen cases of smallpox reported to the Executive office during the year, but it is safe to say there were fully that many unreported, making at a conservative estimate a total of three thousand, seven hundred and twenty-six cases. Sickness from smallpox in severe cases lasts from twenty to thirty days; mild cases a week to ten days, perhaps on an average fifteen days. The three thousand cases then means a labor loss of over fifty thousand days, which at a dollar a day would be over fifty thousand dollars. Among these cases, however, there are a certain number of women and children; cutting it in half we would still have a labor loss of twenty-five thousand dollars. Add to this \$16,326.82, which was paid directly by the State Board of Health in the care of smallpox, and it will be seen what a tremendous sum of the State's capital is wasted—thrown away—on and for a disease which but for a pampered ignorant prejudice against vaccination would have been saved.

These two diseases have been selected to emphasize what a neglect to employ means of prevention, costs annually to the State, because they are types of disease which every citizen of this commonwealth should consider it to be almost a crime to suffer from, or permit to exist within the State's boundary.

The State Medical Association has made a magnificent effort to enlighten the people of Florida on the economic loss from malaria each year, and the State Board of Health has added its voice and assistance in furthering the distribution of the acquired facts. So too, has the State Health Officer insisted upon the prevention which vaccination gives against smallpox and while enmity and vituperous abuse have been heaped upon him and other officials of the Board because they tell a truth which hundreds of years have verified; nevertheless, and irrespective of the hysteria of the antis, the health officials who are charged with the responsible duty of recommending measures to the people, calculated to prevent sickness and conserve their health, will continue to set forth, by facts and figures the results obtained in countries where vaccination has been made compulsory and compare them with the statistics of this kind in the United States, where a "do as you please" policy seems to prevail and where especially ignorance is permitted to dwarf reason, and demagogism receives plaudits.

The high water mark in smallpox prevalence during the past year was reached in the month of February. From that time to the end of the year the disease gradually decreased, as was predicted it would in the last annual report, but the total number of cases during the year aggregated over seventeen hundred, which is estimated to be one-half of actual occurrence. There were eight deaths reported, three of them being white.



Green lines represent the number of cases of smallpox reported in the State by years from 1896 to 1912. Red lines represent the vaccinations done by years.

SMALLPOX REPORTED IN FLORIDA, 1912.

COUNTIES	Jan.	Feb.	Mch.	Apr'l	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Total
Alachua	3	2	5			2		5	1			5	23
Baker		1											1
Bradford	2	1				1							4
Brevard					35								35
Calhoun			10		3	4							17
Citrus						2							2
Clay	2												2
Columbia	30	16	21										67
Dade		5											5
DeSoto		4				1							5
Duval	80	101	42	31	21	16	2	5	3			7	308
Escambia		3	6	16	6	2						6	39
Franklin		3		3	4								10
Gadsden		7					7		5				19
Hamilton											6		6
Hernando	6	5	22	2	1	18							54
Hillsboro	2	6	15	2	1	7				1		2	36
Holmes	2												2
Jackson	75	114	116	50	49	30	20					1	455
Jefferson			1					3		7			11
Lafayette							1						1
Lake	1	1	8				4						14
Lee													
Leon	1	15	1	3	3								23
Levy	2	3	1	2									8
Liberty													
Madison		1		1									2
Manatee	2	1											3
Marion											30		33
Monroe									3		16		19
Nassau	34		1		3								3
Orange		16	1		3							6	44
Osceola					4	2							23
Palm Beach		1	2					1					4
Pasco		1		15									16
Pinellas	1	39	1			8							49
Polk				8		1		1					10
Putnam	3	33	20	22	2	38	2			2			122
St. Johns	2	21	11	10	15	12		8		3		2	84
St. Lucie		1				13							14
Santa Rosa	3		5	0						1			9
Sumter	17	5		11		62	6						101
Suwannee													
Taylor													
Volusia		5		2	2	12		1			1		23
Wakulla													
Washington								1					1
Walton						2	7						9
Total	268	410	290	178	152	233	49	25	12	14		82	1713

EXPENDITURES IN THE MANAGEMENT OF SMALLPOX, 1912.

Alachua County: Number of cases -----	23		
Ordinary salaries chargeable -----		\$ 34.85	
Groceries furnished patients -----		26.25	
Railway fares -----		8.00	
Vaccine, 1,191 points -----		77.52	\$ 146.62
Baker County: Number of cases -----	1		
Vaccine, 50 points -----		3.25	
Bradford County: Number of cases -----	4		
Vaccine, 170 points -----		11.05	11.05
Brevard County: Number of cases -----	5		
Medical services -----		50.00	
Groceries furnished patients -----		38.80	
Drugs -----		10.95	
Vaccine, 230 points -----		14.95	114.70
Calhoun County: Number of cases -----	17		
Medical services -----		23.50	
Groceries -----		42.50	
Vaccine points, 100 -----		6.50	72.50
Citrus County: Number of cases -----	2		
Vaccine, 60 points -----		3.90	3.90
Clay County: Number of cases -----	2		
Railway fares -----		1.60	
Vaccine, 200 points -----		13.00	14.60
Columbia County: Number of cases -----	67		
Ordinary salaries chargeable -----		25.00	
Groceries furnished patients -----		109.60	
Railway fares -----		25.40	
Drugs -----		3.00	
Livery -----		2.00	
Vaccine, 1,810 points -----		117.65	282.65
Dade County: Number of cases -----	5		
Ordinary salaries chargeable -----		65.00	
Cook-nurse service -----		104.00	
Groceries furnished patients -----		91.50	
Vaccine, 332 points -----		21.48	281.98
De Soto County: Number of cases -----	5		
Ordinary salaries chargeable -----		35.00	
Travel (railway fare) -----		1.40	
Vaccine, 130 points -----		8.45	44.85

Duval County: Number of cases -----	308		
Ordinary salaries chargeable -----		1,141.00	
Extraordinary salaries chargeable -----		378.25	
Hospital, laundry and feeding patients -----		2,408.49	
Railway fares -----		18.60	
Hospital furniture and fixtures -----		467.05	
Soap and drugs furnished hospital -----		64.45	
Expenses Asst. State Health Officers -----		60.00	
Vaccine, 20,193 points -----		1,312.55	5,940.39
Escambia County: Number of cases -----	39		
Ordinary salaries -----		480.00	
Extraordinary salaries -----		5.70	
Dray and livery service -----		16.80	
Groceries furnished hospital patients -----		58.25	
Drugs and fumigation -----		11.40	
Vaccine, 480 points -----		31.20	603.35
Franklin County: Number of cases -----	10		
Ordinary salaries chargeable -----		11.60	
Drugs and disinfectants -----		32.65	
Vaccine, 320 points -----		20.80	65.05
Gadsden County: Number of cases -----	19		
Medical attention -----		67.40	
Drugs, etc. -----		6.25	
Vaccine, 1,030 points -----		66.95	140.60
Hamilton County: Number of cases -----	6		
Vaccine, 570 points -----		37.50	37.50
Hernando County: Number of cases -----	54		
Ordinary salaries chargeable -----		65.00	
Extraordinary salaries chargeable -----		171.50	
Railroad fare -----		13.95	
Drugs -----		1.50	
Vaccine, 530 points -----		34.45	286.40
Hillsboro County: Number of cases -----	36		
Ordinary salaries chargeable -----		820.00	
Extraordinary salaries chargeable -----		65.00	
Railroad fare -----		11.70	
Hospital furniture and fixtures -----		20.20	
Livery hire -----		105.00	
Drugs -----		22.85	
Groceries furnished hospital patients -----		133.30	
Vaccine, 835 points -----		54.28	1,232.33
Holmes County: Number of cases -----	2		
Vaccine, 50 points -----		3.25	3.25

Jackson County: Number of cases -----	453		
Ordinary salaries chargeable -----		25.00	
Extraordinary salaries chargeable -----		900.00	
Drugs furnished patients -----		10.00	
Groceries furnished patients -----		14.20	
Transportation -----		42.50	
Vaccine, 435 points -----		28.28	1,019.98
Jefferson County: Number of cases -----	11		
Ordinary salaries chargeable -----		10.00	
Extraordinary salaries chargeable -----		5.00	
Livery service -----		4.00	
Railroad fare -----		2.50	
Vaccine, 130 points -----		8.45	29.95
Lafayette County: Number of cases -----	1		
Vaccine, 80 points -----		5.20	5.20
Lake County: Number of cases -----	14		
Ordinary salaries chargeable -----		25.00	
Extraordinary salaries chargeable -----		186.50	
Transportation -----		.20	
Vaccine, 367 points -----		23.86	235.56
Leon County: Number of cases -----	23		
Ordinary salaries chargeable -----		200.00	
Livery hire -----		71.65	
Rent of house and cleaning, etc. -----		19.75	
Cot and blankets for patients -----		4.75	
Oil and heater for patients -----		4.20	
Drugs furnished patients -----		29.85	
Vaccine, 340 points -----		22.10	352.30
Levy County: Number of cases -----	8		
Vaccine, 556 points -----		36.14	36.14
Liberty County: No cases.			
Vaccine, 170 points -----		11.05	11.05
Madison County: Number of cases -----	2		
Vaccine, 170 points -----		11.05	11.05
Manatee County: Number of cases -----	33		
Ordinary salaries chargeable -----		10.00	
Living expenses Asst. State Health Officer --		5.95	
Vaccine, 880 points -----		57.20	73.15

Marion County: Number of cases -----	19		
Ordinary salaries chargeable -----		10.00	
Living expenses Asst. State Health Officer --		15.00	
Railroad fare -----		5.70	
Vaccine, 1,705 points -----		110.82	141.52
Monroe County: Number of cases -----	3		
Vaccine, 70 points -----		4.55	4.55
Nassau County: Number of cases -----	44		
Extraordinary salaries chargeable -----		141.90	
Rent for hospital -----		40.00	
Furnishings for hospital -----		58.50	
Cook and nurse -----		106.15	
Groceries -----		91.06	
Drugs -----		42.15	
Vaccine, 1,950 points -----		126.75	606.51
Orange County: Number of cases -----	23		
Ordinary salaries chargeable -----		7.00	
Drugs -----		3.90	
Transportation -----		2.25	
Vaccine, 1,200 points -----		78.00	91.15
Palm Beach County: Number of cases -----	4		
Vaccine, 160 points -----		10.40	10.40
Pasco County: Number of cases -----	16		
Ordinary salaries chargeable -----		17.00	
Transportation -----		15.60	
Drugs -----		2.00	
Vaccine, 1,240 points -----		80.60	115.20
Polk County: Number of cases -----	10		
Ordinary salaries chargeable -----		20.00	
Extraordinary salaries chargeable -----		23.00	
Groceries -----		36.00	
Tent, cot, clothing and livery -----		76.00	
Transportation -----		5.00	
Vaccine, 275 points -----		17.88	177.88
Pinellas County: Number of cases -----	49		
Extraordinary salaries chargeable -----		178.50	
Ordinary salaries chargeable -----		10.00	
Groceries -----		292.50	
Transportation -----		1.15	
Vaccine, 150 points -----		9.75	491.90

Putnam County: Number of cases -----	132		
Ordinary salaries chargeable -----	60.00		
Extraordinary salaries chargeable -----	47.50		
Living expenses of Asst. State Health Officers -----	26.75		
Transportation -----	7.55		
Groceries -----	12.80		
Drugs -----	1.25		
Vaccine, 1,370 points -----	89.05	244.90	
Santa Rosa County: Number of cases -----	9		
Extraordinary salaries chargeable -----	181.00		
Vaccine, 250 points -----	16.25	197.25	
St. Johns County: Number of cases -----	84		
Ordinary salaries chargeable -----	10.00		
Extraordinary salaries chargeable -----	266.00		
Groceries -----	124.34		
Drugs and fumigation -----	16.35		
Transportation -----	5.40		
Vaccine, 680 points -----	44.20	466.29	
St. Lucie County: Number of cases -----	14		
Extraordinary salaries chargeable -----	15.00		
Groceries and drugs -----	47.60		
Vaccine, 100 points -----	6.50	69.10	
Sumter County: Number of cases -----	101		
Ordinary salaries -----	20.00		
Extraordinary salaries chargeable -----	198.00		
Groceries -----	116.20		
Drugs -----	11.35		
Transportation -----	3.60		
Vaccine, 800 points -----	52.00	401.15	
Volusia County: Number of cases -----	23		
Ordinary salaries chargeable -----	25.00		
Extraordinary salaries chargeable -----	74.40		
Groceries -----	132.55		
Rent of isolation hospital for patients -----	4.50		
Drugs -----	2.90		
Miscellaneous -----	5.70		
Transportation -----	6.50		
Vaccine, 884 points -----	57.46	309.01	
Walton County: Number of cases -----	9		
Vaccine, 24 points -----	1.56	1.56	

Washington County: Number of cases -----	1		
Extraordinary salaries chargeable -----	5.00		
Vaccine, 30 points -----	1.95	6.95	
Total cost of vaccine used in 1912 -----			\$2,754.43
Total expense of management exclusive of vaccine -----			\$11,643.90
Total expenditures account smallpox -----			\$14,398.33

TWENTY-FOURTH ANNUAL REPORT

EXECUTIVE OFFICE

RECORD OF VACCINE DISTRIBUTED, 1912.

COUNTY	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Totals
Alachua	290	430	120	90	80	30		61	40			50	1191
Baker		50											50
Bradford	30	50		50				20		20			170
Brevard	50			40	120		10				10		230
Calhoun		30	70										100
Citrus		10				20	30						60
Clay	70	90		30						10			200
Columbia	1400		280			110				10			1810
Dade		20	200	12								10	332
DeSoto	10	80				40		100					130
Duval	1956	17775	25	12	260	10		75		10	20	50	20193
Escambia	50	100	50	50	50	50			30	50		50	480
Franklin	30	150	30	30	50	30							320
Gadsden	50	310	50	110	120	40	50	50	50	100	50	50	1030
Hamilton	210	180			10	50	20					100	570
Hernando	190	140	50			150							530
Hillsboro	100			250	120		25	80			70	190	835
Holmes		50											50
Jackson	20	350				40		5				20	435
Jefferson	10						50	20		20		30	130
Lafayette		30		50									80
Lake	80		30	2	50	135	30			40			367
Lee													
Leon	100			100	40							100	340
Levy	140	180	150		56			30					556
Liberty					50	100	20						170
Madison	60	30	10	40	30								170
Manatee		50											
Marion	110	650	30	200	50	30		272	102	190	30	750	880
Monroe		30				30					35	36	1705
Nassau	1420	380		50								10	70
Orange	20	750		300	50	70	10					100	1950
Osceola				40									1200
Palm Beach		50		90		10							40
Pasco	30	530	100	560			20			10			160
Pinellas	50												1240
Polk	80	150				100							150
Putnam	80	390		390	100	320	10	25		50			275
Santa Rosa	120	80	50					30					1370
St. Johns	50	220	50	40	50	110		120	20			20	250
St. Lucie		50				50							680
Sumter	50		20	320	10	210	120	70					100
Suwannee		90		20						6			800
Taylor													116
Volusia	30	160			394	200		70		30			884
Waukula													
Walton						24							24
Washington				10								20	30
Totals	6886	23635	1365	2886	1690	1979	395	998	272	536	225	1586	42453

STATE BOARD OF HEALTH OF FLORIDA

VACCINE DISTRIBUTED BY THE STATE BOARD OF HEALTH IN DUVAL COUNTY, 1912.

Month	To City Board of Health.	Total Duval Co.
January	1250 points	1956 points
February	9500 points	17775 points
March		25 points
April		12 points
May	200 points	260 points
June		10 points
July		
August		
September		75 points
October		
November		10 points
December		20 points
Total for 1912		20193 points

HOOKWORM.

While the warfare against hookworm and the effort put forth by the Board commencing in 1909 has not been as vigorously pushed during the past two years by the office force as could have been wished, yet an educational campaign in this direction has been continuously waged through the medium of the Health Notes, and interest in the subject kept alive by correspondence and personal appeals. This work unfortunately had to be interrupted when smallpox became so prevalent in the State last year. It required almost the entire time of the field assistants to supervise the management of cases of smallpox, a statutory duty that had to be obeyed, but it is believed that there is scarcely a settlement in Florida, even though sparsely populated, that is not now fully informed of the pernicious effect upon health, both physical and mental, which this parasite has upon the growing child, and that if the warning which the Board has sounded is not accepted and heeded, then the individual parent must shoulder the responsibility of neglect, consequent sickness and defective vitality which the disease entails upon himself and his family. Many of the physicians of the State have treated for the State Board of Health those who were indigent and the State Board of Health fulfilling its part of the agreement, has paid for three successive treatments, whether entirely satisfactory in final results or not. Indeed, one physician

living in the western part of the State has sent the Board 937 reports of cases treated and has very materially added to his yearly income thereby. Realizing what it means to have specimens delayed in reaching the laboratory for confirmation by bacteriological examination before treatment is offered, and that such methods were tedious and dilatory in speedily rendering aid, another plan was formulated and operated during the summer and fall, by which Drs. Young and Diggett, Assistant State Health Officers, established dispensaries in the western part of the State to treat all applicants; these dispensaries being located along the line of railroad and in what appeared to be intensely infected districts. In other words, clinics were held and as both of these doctors had had large experience in this disease, they were able to determine from physical appearance who were infected and to furnish treatment accordingly. These clinics were free to all. The report of Drs. Diggett and Young will be found exceedingly interesting and instructive and is commended to you for careful reading.

DISTRIBUTION OF HOOKWORM DISEASE TREATED AT THE EXPENSE OF THE STATE BOARD OF HEALTH, 1912.

County.	Number of Physicians.	Number of Cases Treated.	Number of Towns.
Bradford -----	1	2	1
Calhoun -----	2	966	2
DeSoto -----	2	3	2
Duval -----	1	4	1
Escambia -----	1	1	1
Hillsboro -----	2	33	1
Holmes -----	1	2	1
Jackson -----	1	7	1
Jefferson -----	1	1	1
Lafayette -----	2	12	1
Lee -----	1	2	1
Leon -----	1	14	1
Levy -----	1	2	1
Manatee -----	2	48	1
Marion -----	2	4	2
Nassau -----	1	1	1
Orange -----	2	3	1
Pasco -----	1	7	1
Polk -----	1	15	1
Suwanee -----	1	10	1
Walton -----	1	20	1
Twenty-one Counties -----	28	1157	24

TYPHOID.

Those who have paid careful attention to investigations which have followed outbreaks of typhoid fever in various parts of the country, must be impressed with the fact that the housefly has played an important part in such instances, and has been a great factor in spreading this disease, and that where and when due regard has been paid to this insect as a carrier of the bacillus of typhoid fever and measures have been taken to prevent the same, that the typhoid rate in that city or section of the country has wonderfully decreased. For instance: Prior to 1910 Jacksonville had a high death rate from typhoid fever; the stigma was published, and disputed, but confirmed by the reports from the Bureau of Vital Statistics of the Census. What was done? Did the City Board of Health quietly rest under the charge? It could not deny the accusation, because it was true, and the thing to do was to correct the defect in the health wave of the city in this one particular at least. Dr. C. E. Terry, the very efficient Health Officer of Jacksonville, began to look around for the cause, and he found, while seeking, the cause of a high death rate of typhoid fever, far in excess of what should occur under good sanitary conditions. He had a situation like this: A sewered city well provided for the disposition of domestic wastes, encircled with the larger part of the city's population having no sewers and using surface privies. He found too, that the cases of typhoid fever came, in the great majority of instances, from the unsewered part of the city, and that gradually the sewered city was invaded. He decided that the fly was the criminal traveller, and the action to take was to have all privies screened against flies. There was opposition, of course, from property owners, on the ground of additional expense, and the fight waxed warm in and out of the municipal chamber, but as right and truth will ultimately prevail, the City Health Officer carried his point, because he had scientific facts to support his contention. Now notice the result: Within a year the privies were screened against flies and the typhoid rate in Jacksonville began to decrease and last year was cut in two, fully fifty per cent over 1909 and 1910. Was it worth while?

What was done for Jacksonville can be done in every other city and town in Florida in lessening typhoid fever, if the people

will it. By the people, is meant action to be taken by those who represent the voters in the municipal councils. Occasionally outbreaks of typhoid fever are found which are due to food and drink pollution, but in the great majority of cases the spread of typhoid can be directly traced to fly infection, therefore it is fair to state that outbreaks of typhoid in this State must be directly chargeable to the indifference of municipal authorities to seriously consider and act upon advice from competent authority and provide safeguards against this insect-borne infection.

Boards of Health, whether National, State or Municipal, are creatures only of the people and unless the efforts of the health officials are met by a hearty support from the representatives of the people in their legislative capacity, and personal co-operation in individual citizenship, the task imposed upon any Board of Health is a most difficult, disheartening and discouraging one. Rules and regulations can be formulated, officially passed and promulgated, but unless accepted and approved of by the people and sustained by co-operative assistance, they can never be effectively enforced, because the violation of the rules and regulations must always be determined by the people sitting as jurors in each individual instance.

Elsewhere will be found a tabulated list of preventable diseases as reported to the executive office, a study of which gives a very clear statement of what the State pays for the care of sickness which the negligence of the individual citizen prompted and induced by irresponsible advisors has effected.

CRIPPLED CHILDREN.

The legislature of 1911 added to the duties of the State Board of Health by statutes requiring corrective treatment under the direction of the Board to the indigent crippled children of the State, by which St. Luke's Hospital and Brewster Hospital, in Jacksonville, the latter an institution for the colored people, admits these unfortunates on the payment by the Board for board and whatever demands there may be for dressings, etc., and Dr. Raymond C. Turck, a skilled surgeon of Jacksonville, in this special work, kindly and generously offers his professional services without charge in this charitable undertaking. Elsewhere,

Dr. Turck very interestingly tells the State Health Officer of the work which has been done under his direction at St. Luke's Hospital and the Brewster Hospital for the past year, and with the photographs attached to his letter shows satisfactory success has almost invariably followed an operation. There have been thirteen cases treated at a total cost to the State of \$1,439.19, or at an average cost per case of \$110.71.

The State Health Officer wishes to express to Dr. Turck his thanks and appreciation for the valuable aid he has given in solving a statutory problem which was a difficult one at first to undertake. The executive office is careful to see that the requirements of the statute are strictly followed and that the charitable assistance of the State is only given to those who are indigent and unable in a monetary way to defray the expense of correcting a deformity.

HOG CHOLERA SERUM.

The distribution of hog cholera serum to the farmers of the State without cost to them has been one entailing many perplexing features. The legislature merely directed the distribution, not the administration. It was recognized at the outset that to make effective this antidote of hog cholera, that certain rules in regard to its administration must be imposed and strictly followed, else there would be a waste of material with no appreciable results. It was difficult to have those engaged in swine raising understand that the use of the serum must be in the presence of hog cholera, and that as a preventive solely, and to give the serum otherwise would be a needless waste of time and money. Therefore, to correct a misunderstanding and to teach how to make the injection, in addition to the veterinarian of the State Board of Health, several assistants were secured to help in this work, and to give the necessary information to the farmers. As the disease became widespread, it was found even necessary to instruct and to enlist the services of individual farmers in different sections of the State, how to use the syringe and where to give the injection, so that there might be as little delay as possible in administering the antidote to a herd before destructive fatality had occurred. How this was done, and by whom, is described in another portion of this report. Before concluding this subject your attention, however, is

called to the fact that with the exception of Illinois and Florida no other states in the United States distribute hog cholera serum free. The farmers are expected to pay for the serum.

PLAGUE IN HAVANA.

The general sanitary mind was disturbed somewhat in July by the announcement of a case of plague in Havana, Cuba. A few days later another case was reported and then, as it were, a general cry of fear was sounded, especially along the Southern Gulf seaports.

This executive office "sat steady in the boat" because fully confident that the United States Public Health Service, by its representative in Havana, would adopt and operate all necessary measures to guard the United States against any possible introduction of the disease, either by passengers or by rats. The State Health Officer requested of Surgeon General Blue that the regulations formulated by the United States Public Health Service should be made uniform in application to all seaports of the Atlantic and Gulf coasts, so that passengers might not take passage to other ports from Havana and then return to Florida within the prescribed incubation period of the disease.

As soon as the representative of the U. S. Public Health Service in Havana, assisted by the Chief Sanitary Officer of the Republic of Cuba had definitely and to them satisfactorily determined the area of possible infection in Havana, the State Health Officer of Florida gave himself no further uneasiness concerning the spread of plague from Havana, because of faith and confidence felt in the ability of both of these officials to successfully handle the situation.

The U. S. Public Health Service conducted the fumigation of vessels leaving Havana for ports in the United States and kept under observation at Triscornia, the Cuban immigration station, such passengers for the United States as had been or had resided within the infected area, until the period of incubation had passed. The executive officer advised all the seaports of Florida of the prevalence of plague in Havana and requested the municipal authorities to take steps toward rat eradication, and at the same time provided for the bacteriological examination of rats when caught, especially those captured along the water front of cities, at the es-

tablished laboratories of the Board at Tampa, Jacksonville and Pensacola, besides fitting up a temporary laboratory at Key West, for the purpose.

Nothing suspicious was found anywhere except at Key West, when at the request of the State Health Officer to the Surgeon General of the United States Public Health Service at Washington that the findings should be investigated and examined by an expert skilled in microscopical examination of plague cultures and bacilli, Dr. John F. Anderson, Director of the Hygienic Laboratory of the United States Public Health Service, was sent to Key West for that purpose. Fortunately his examination proved negative and the incident closed very happily for all concerned.

LABORATORIES.

Your attention is invited to the highly interesting report of the Senior Bacteriologist of the Board and the bacteriologists in charge of the laboratories at Tampa and Pensacola, who give instructive figures and facts relating to the work of the several laboratories of the State during the year. That these institutions for disease investigation are appreciated by the physicians of the State, and through them, the individuals who have profited by the State's generosity—the patients—is well attested by the words of commendation which the Board is almost daily receiving in thus providing means for a quick determination of disease and the prompt assistance, and oftentimes prevention of fatality which early recognition of a disease will make.

A STATEMENT SHOWING THE AVERAGE COST PER SPECIMEN AT THE BACTERIOLOGICAL LABORATORIES OF THE STATE BOARD OF HEALTH OF FLORIDA, 1912.

Location.	No. of Examinations.	Total Cost.	Average Cost per Specimen.
Jacksonville -----	11006	\$9315.58	\$0.84
Tampa -----	7185	5465.82	.76
Pensacola -----	2889	2618.04	.91
Totals for 1912-----	21080	17399.44	.82
Totals for 1911-----	20233	16458.65	.81

VETERINARY MATTERS.

The veterinary division of the Board has done a most excellent work for the State during the past twelve months. Besides determining reported cases of glanders, assistance has been rendered in a professional way to many citizens for other diseases affecting live stock.

Quite recently much interest has been stimulated by Dr. Dawson, the Veterinarian of the Board, in the subject of eradication of Texas fever in cattle of the State. It is due to him that the subject has received statewide attention and for steps taken to liberate Florida from a quarantine imposed against the State on this account by the United States Department of Agriculture.

I cannot speak too highly of Dr. Dawson's work in this line and the able manner in which he has handled all diseases of the lower animals which have been referred to him for treatment. The executive office has gladly sought to carry out every suggestion which would improve the health and commercial value of the live stock of the State. I trust that the Board may find the subject of sufficient interest to give the report of Dr. Dawson a careful reading.

FINANCES.

The statement of finances of any institution is always interesting to the tax-payers. While the expenditures of the State Board of Health during the past year have been large, it must not be forgotten that additional duties have been imposed on the Board by each succeeding legislature, which call for a larger expenditure of money to efficiently fulfill the will of the lawmakers, both in clerical work to effectively tabulate the work done, as well as in carrying out the provisions of the law.

Then too, during the year the Board finished paying for the home which it is now occupying in the city of Jacksonville. The statement is itemized so that at a glance can be seen what the various sums were expended for.

STATE BOARD OF HEALTH OF FLORIDA

41

No. 1.

THE EXPENDITURES IN DETAIL		Items.	Total.
Per diem and mileage, members of the Board attending one meeting	-----	\$ 157.60	\$ 157.60
Salaries and traveling expenses:			
Salary State Health Officer	-----	3,000.00	
Travel expenses State Health Officer	-----	1,117.97	4,117.97
Salaries four Asst. State Health Officers	-----	7,524.80	
Travel expenses Asst. State Health Officers	-----	2,737.63	10,262.43
Salaries County Agents	-----		2,550.00
Salaries Veterinary Division	-----	3,133.26	
Travel expenses Veterinary Division	-----	1,798.86	4,932.12
Salaries Sanitary Patrolmen, Jacksonville, Tampa, Pensacola, Key West and Miami	-----		3,000.00
Maintenance of Executive Office, Jacksonville: Clerical assistance, which includes pay of three clerks, and office boy, together with salary and travel expense of Secretary to the State Health Officer	-----	3,800.50	
General office expense, including office rent prior to moving to Board of Health Building, telephone charges, postage, expressage, office fixtures, and other incidental expenses	-----	2,824.18	
Printing, stationery, publications, records, etc.	-----	3,505.22	
Telegraph tolls	-----	582.24	
Insurance and miscellaneous items	-----	1,496.00	12,108.14
Maintenance of new State Board of Health Building	-----		4,937.71
Equipment and maintenance, county isolation hospitals:			
Dade County	-----	473.79	
Duval County	-----	4,968.87	
Escambia County	-----	724.24	
Hillsboro County	-----	5,227.01	11,393.91
Smallpox expense, unclassified	-----		4,932.91
Vaccine (smallpox)	-----		4,428.00
Diphtheretic and tetanus antitoxins	-----		500.95
Pasteur treatment for the indigent	-----		2,052.70
Expense incident to uncinariasis, unclassified	-----		4,438.66
Reimbursement for glandered animals	-----		2,800.00
Hog cholera serum	-----		14,369.92
Hospital and incidental expense for crippled children	-----		1,439.19
Bacteriological laboratories:			
Jacksonville: Salaries, senior bacteriologist, two assistants, stenographer and orderly	-----	6,537.10	
Equipment and maintenance	-----	4,580.16	11,117.26
Tampa: Salaries, two bacteriologists, stenographer and janitor	-----	4,324.25	
Equipment and maintenance	-----	1,141.57	5,465.82
Pensacola: Salaries one bacteriologist and office boy	-----	2,336.17	
Equipment and maintenance	-----	281.87	2,618.04
Total operating expenses	-----		\$107,623.33
Amount expended for building	-----		10,163.00
Total expenditures for 1912	-----		\$117,786.33

NOTE.—From the maintenance of the Jacksonville laboratory, \$1,801.68 should be taken, as this amount was expended for permanent fixtures in the laboratory.

No. 2.

RECEIPTS.

	Regular Requisition.	Special Requisition.	Total.
January -----	\$	\$ 3,226.40	
January -----		2,682.31	
January -----	2,883.13	3,771.74	\$ 12,563.58
February -----	3,176.38	5,319.88	8,496.26
March -----		8,260.00	
March -----	3,194.36	828.00	
March -----		4,142.94	
March -----		6,568.98	22,994.28
April -----	3,202.96	3,522.02	6,724.98
May -----	3,204.71	2,088.56	
May -----		8,855.77	14,149.04
June -----	3,180.46	829.90	
June -----		2,885.17	6,895.53
July -----	2,947.35	683.00	
July -----		4,766.80	
July -----		2,896.06	11,293.21
August -----	3,053.46	2,182.32	
August -----		1,863.35	7,099.13
September -----	2,796.63	881.79	
September -----		4,224.93	7,903.35
October -----	2,823.46	2,413.15	5,236.61
November -----	2,832.46	2,841.06	5,673.52
December -----	2,803.46	851.50	
December -----		2,795.67	
December -----		2,306.21	8,756.84
Total receipts -----	\$36,098.82	\$81,687.51	\$117,786.33

RULES AND REGULATIONS.

The State Board of Health passed a new set of rules and regulations at its last annual meeting in February, 1912. These rules and regulations are explanatory merely of what the several statutes of the State require in details of health management. They may be said to be in most instances advisory and not mandatory. They have been printed and distributed and it is thought they cover every phase of needful sanitation and if followed are ample in all requirements. Neither the State Board of Health nor the State Health Officer is invested with judicial or police health powers—a very fortunate circumstance—so it does not rest with either to see that the laws of the State in this particular are observed. Whenever it comes to the attention of the State Health Officer, however, that the Statutes of the State are being disregarded or the

rules of the State Board of Health violated, he notifies the prosecuting attorney of the county, leaving with that official the question of arrest and prosecution. Oftentimes, unfortunately, the information given to the prosecuting attorney is ignored, and nothing is done.

SCREENING.

At the last legislative session of 1911 a most excellent law was enacted requiring hotels, boarding houses and restaurants to screen their kitchens, dining rooms and hallways leading thereto against flies. If this law had been strictly enforced by the sheriffs in the several counties of the State, it is confidently believed that many cases of typhoid fever occurring in the State would have been prevented during the past year. It is both a senseless and useless expenditure to have screen doors to kitchens and dining rooms and to permit them to be kept open. A technical compliance with the law in having wire screens to doors and openings leading into kitchens and dining rooms is not complying with the intent and spirit of the enactment. If the next legislature will amend the law by providing specifically that it shall be the duty of the sheriff and his deputies in the several counties of the State to see not only that the screens are placed so that flies may not enter kitchens and dining rooms, but that every public eating place shall be guarded against flies and then go a step further and include in the provisions of the act, railroad lunch counters and all fruit and vegetable stands where fruits and vegetables are sold which may be eaten uncooked, the lawmakers of the State will very materially strengthen the wise intention of Mr. Sloan, who introduced the present law in the legislature of 1911.

GLANDERS.

Another recommendation is submitted for the consideration of the Board and the legislature of the State, which relates to glanders. It is advised that the legislature rewrite that portion of the statutes of the State which deals with the care of disease of domestic animals and refers to payment of animals condemned on account of glanders. So amend the section relating to glanders that payment will only be made for burial of an animal condemned for glanders. An animal with glanders is worthless and has no

monetary value. The present law is an invitation to dishonest horse dealers from other states to run into Florida, horses or mules with this disease which have been "doctored up" and which have been purchased for little or nothing and then to sell them to innocent farmers and countrymen of Florida at a low price. The Canadian Veterinary authorities recite many instances where animals have reacted to the mallein test and have lived for two or three or more years, but were decidedly dangerous to other stock coming in contact with them during that interval.

There is no provision of law whereby a tuberculous cow or a dog with rabies, never mind how valuable either may be in a state of health to the owner, is paid for by the State when destroyed to prevent a spread of infection. It is unreasonable therefore and faulty to contend that a horse or a mule with glanders should have any greater consideration from the taxpayers of the State than other animals that may unfortunately contract a disease alike dangerous to human life and other stock.

RECOMMENDATIONS.

Again, it is recommended that an amendment be made to the present Statute which directs the State Board of Health to furnish hog cholera serum without charge to the farmers of the State. With the exception of Illinois, Florida is the only State in the United States which donates this serum free of charge to the farmers. Notwithstanding the fact that the utmost economy has been observed in the distribution of this serum and every safeguard has been directed against waste, yet the records of the office fail to account in numbers of hogs injected and treated, something like four thousand dollars' worth of serum sent out from this office for this purpose. The system of reports which the Board planned at the very commencement of the distribution should show for every ounce of the serum used, a report of the number of hogs treated with weight and the amount of serum used and these should agree, but this is not the case, and there is room to believe that there has been great waste. It is believed, therefore, that if the law is amended to authorize the State Board of Health only to furnish this serum at cost, then hog raisers would be more econom-

ical in its use, because too often a gift of this character is not made a matter of good husbandry.

In concluding this condensed statement of what has been done in the executive office during the year, the State Health Officer wishes to express his thanks and grateful appreciation to the president and members of the Board for the confidence shown in his management of the executive office, which involved so many delicate features of administration where the public is concerned, to the people of the State for many expressions of approval of course pursued generally, as voiced through the public press, and to his assistants and co-laborers in the office for the generous and loyal support and co-operation which they have given to the Board and himself, for without their help and support the most excellent results effected in the Health Department of the State could scarcely have been realized.

Very respectfully,

JOSEPH Y. PORTER,
State Health Officer.

HYDROPHOBIA

TREATMENT ADMINISTERED FOR ITS PREVENTION BY THE STATE BOARD OF HEALTH
DURING 1912.

JANUARY

County	Town	Case No.	Sex	Race	Age	Date of Bite	Location	Animal	Microscopical Clinical	TREATMENT ADMINISTERED		Remarks
										Begun	Completed	
Duval	Jacksonville	221	F	Col.	Adult	Jan. 11	Wrist	Dog	Clinical	Jan. 21	Feb. 8	Indigent
Duval	Jacksonville	222	M	W	16 yrs.	Jan. 18	Hand	Dog	Microsc.	Jan. 22	Feb. 8	Indigent
Duval	Jacksonville	223	M	W	18 yrs.	Jan. 19	Hand	Dog	Microsc.	Jan. 22	Feb. 8	Indigent
Suwannee	Wellborn	224	M	W	18 yrs.	Jan. 16	Hand	Dog	Microsc.	Jan. 23	Feb. 8	Pay case
Suwannee	Wellborn	225	F	W	7 yrs.	Jan. 16	Hand	Dog	Microsc.	Jan. 23	Feb. 8	Pay case

FEBRUARY

Duval	Jacksonville	226	F	W	17 yrs.	Feb. 1	Ankle	Dog	Clinical	Feb. 3	Feb. 21	Indigent
Duval	Jacksonville	227	M	W	Adult	Feb. 2	Hand	Dog	Microsc.	Feb. 8	Feb. 24	Indigent
Duval	Jacksonville	228	M	W	Adult	Feb. 2	Hand	Dog	Microsc.	Feb. 8	Feb. 25	Indigent
Duval	Jacksonville	229	F	W	Adult	Feb. 2	Hand	Dog	Microsc.	Feb. 9	Feb. 25	Indigent
Walton	DeFuniak	230	M	W	Adult	Jan. 23	Hand	Cat	Microsc.	Feb. 9	Feb. 25	Indigent
Gadsden	Greensboro	231	M	W	Adult	Jan. 22	Hand	Cat	Microsc.	Feb. 9	Feb. 26	Indigent
Baker	Macclenny	232	M	W	13 yrs.	Feb. 17	Leg	Dog	Microsc.	Feb. 20	Mar. 7	Indigent
Duval	Jacksonville	233	M	W	Adult	Feb. 13	Finger	Dog	Clinical	Feb. 20	Mar. 7	Indigent
Bradford	Lawtey	234	M	W	16 yrs.	Feb. 18	Hand	Dog	Microsc.	Feb. 22	Mar. 10	Indigent
Suwannee	Jacksonville	235	M	W	Adult	Feb. 24	Knee	Dog	Microsc.	Feb. 26	Mar. 14	Indigent
Duval	Wellborn	236	M	W	5 yrs.	Feb. 24	Face	Dog	Microsc.	Feb. 29	Mar. 19	Pay case

Discontinued.

MARCH

Hillsboro	Pt. Tampa	237	M	W	11 yrs.	Mar. 2	Leg	Dog	Microsc.	Mar. 10	Mar. 27	Indigent
Alachua	Newberry	238	F	W	9 yrs.	Mar. 3	Hand	Dog	Microsc.	Mar. 11	Mar. 28	Indigent
Alachua	High Spr'gs	239	F	W	2 yrs.	Mar. 5	Hand	Dog	Microsc.	Mar. 13	Mar. 29	Indigent
Duval	High Spr'gs	240	M	W	Adult	Mar. 8	Hand	Dog	Microsc.	Mar. 13	Mar. 29	Indigent
Duval	Jacksonville	241	M	W	Adult	Feb. 25	Thumb	Dog	Clinical	Mar. 15	Mar. 31	Indigent
Washington	Millville	242	F	W	11 yrs.	Mar. 12	Leg	Dog	Microsc.	Mar. 20	Apr. 6	Indigent
Duval	Jacksonville	243	M	Col.	8 yrs.	Mar. 19	Finger	Dog	Microsc.	Mar. 22	Apr. 8	Pay case
Duval	Jacksonville	244	M	W	12 yrs.	Mar. 30	Leg	Dog	Clinical	Mar. 30	Apr. 15	Indigent
Duval	Jacksonville	245	M	W	Adult	Mar. 27	Hand	Dog	Microsc.	Mar. 30	Apr. 15	Indigent

APRIL

Polk	Bartow	246	M	W	Adult	Apr. 3	Hand	Dog	Clinical	Apr. 7	Apr. 24	Pay case
Duval	Jacksonville	247	M	W	Adult	+	+	+	Microsc.	Apr. 16	May 1	Pay case
Duval	Jacksonville	248	F	W	Adult	+	+	+	Microsc.	Apr. 16	May 1	Pay case
Duval	Jacksonville	249	M	W	Adult	+	+	+	Microsc.	Apr. 16	May 1	Pay case
Duval	Century	250	M	W	Adult	Apr. 14	Finger	Dog	Microsc.	Apr. 17	May 4	Pay case
Escambia	Jacksonville	251	F	W	10 yrs.	Apr. 6	Hand	Dog	Clinical	Apr. 18	May 4	Pay case
Duval	Tampa	252	M	W	2 yrs.	Apr. 10	Leg	Dog	Microsc.	Apr. 19	May 5	Indigent
Hillsboro	Jacksonville	253	M	W	Adult	Apr. 21	Hand	Dog	Microsc.	Apr. 26	May 6	Indigent
Duval	Jacksonville	254	M	W	Adult	Apr. 23	Leg	Dog	Microsc.	Apr. 26	May 14	Pay case
St. Johns	St. Aug.	255	F	Col.	Adult	Apr. 25	Arm	Dog	Microsc.	Apr. 28	May 16	Pay case
St. Johns	St. Aug.	256	M	Col.	14 yrs.	Apr. 25	Arm	Dog	Microsc.	Apr. 28	May 16	Indigent
St. Johns	St. Aug.	257	M	Col.	Adult	Apr. 22	Leg	Dog	Microsc.	Apr. 29	May 17	Indigent

MAY

Duval	Jacksonville	258	M	W	7 yrs.	May 1	Arm	Dog	Microsc.	May 5	May 19	Indigent
Duval	Jacksonville	259	F	W	7 yrs.	May 1	Hand	Dog	Microsc.	May 5	May 19	Indigent
Hillsboro	Tampa	260	F	W	Adult	May 8	Thigh	Dog	Microsc.	May 12	May 29	Pay case
Manatee	Bradentown	261	M	Col.	15 yrs.	May 8	Thigh	Dog	Microsc.	May 12	Jun. 2	Indigent
Baker	Macclenny	262	M	W	Adult	May 10	Hand	Dog	Microsc.	May 16	Jun. 1	Pay case
Baker	Macclenny	263	F	W	7 yrs.	May 10	Nose	Dog	Microsc.	May 16	Jun. 1	Indigent
Baker	Macclenny	264	F	W	13 yrs.	May 10	Nose	Dog	Microsc.	May 16	Jun. 3	Indigent

JUNE

Marion	Ocala	265	M	W	Adult	May 24	Finger	Dog	Microsc.	Jun. 1	Jun. 15	Pay case
Hillsboro	Tampa	266	M	W	13 yrs.	June 1	Hand	Dog	Clinical	Jun. 10	Jun. 24	Pay case
Hillsboro	Tampa	267	F	W	Adult	June 1	Hand	Dog	Clinical	Jun. 15	Jun. 29	Pay case
St. Johns	St. Aug.	268	M	W	17 yrs.	June 15	Cheek	Dog	Microsc.	Jun. 21	Jun. 29	Pay case
St. Johns	St. Aug.	269	F	Col.	Adult	June 8	Finger	Dog	Microsc.	Jun. 21	July 18	Indigent

JULY

Hamilton	Jennings	270	M	W	Adult	July 6	Hand	Dog	Clinical	July 8	July 25	Pay case
Hillsboro	Ybor City	271	M	W	8 yrs.	July 6	Hand	Dog	Clinical	July 8	July 25	Pay case
Duval	Jacksonville	272	M	W	Adult	July 8	Hand	Dog	Clinical	July 12	July 30	Indigent
Duval	Jacksonville	273	M	W	Adult	July 8	Hand	Dog	Clinical	July 12	July 30	Indigent
Dade	Tampa	274	M	W	10 yrs.	July 5	Wrist	Cat	Clinical	July 16	July 30	Indigent
Hillsboro	Ft. Laud.	275	M	W	4 yrs.	July 19	Head	Dog	Microsc.	July 14	Aug. 2	Indigent
Hillsboro	Tampa	276	M	W	2 yrs.	July 24	Face	Cat	Microsc.	July 28	Aug. 17	Indigent
Hillsboro	Tampa	277	M	W	Adult	July 23	Hand	Dog	Microsc.	July 29	Aug. 15	Pay case

Discontinued.

AUGUST

County	Town	Case No.	Sex	Race	Age	Date of Bite	Location	Animal	Microscopical Clinical	TREATMENT ADMINISTERED		Remarks
										Begun	Completed	
Madison	Pinetta	278	M	W	5 yrs.	Aug. 8	Heel	Cat	Microsc.	Aug. 10	Aug. 27	Indigent
Hillsboro	Tampa	279	M	W	6 yrs.	Aug. 7	Hand	Dog	Microsc.	Aug. 10	Aug. 28	Pay case
St. Johns	St. Aug.	280	M	W	Adult	8				Aug. 11	Aug. 28	Indigent (?)
Hillsboro	Tampa	281	M	Col.	Adult	Aug. 19	Abdomen	Dog	Clinical	Aug. 22	Sep. 8	Indigent
Hillsboro	Tampa	282	M	W	10 yrs.	Aug. 19	Arms	Dog	Clinical	Aug. 23	Sep. 9	Indigent
Duval	Jacksonville	283	M	W	5 yrs.	Aug. 30	Leg	Dog	Microsc.	Aug. 30	Sep. 16	Indigent (?)

SEPTEMBER

Hillsboro	Tampa	284	M	W	Adult	Sep. 2	† Ankle	Cat	Microsc.	Sep. 4	Sep. 21	Pay case
Hillsboro	Tampa	285	F	W	Adult	Sep. 9	Head	Dog	Clinical	Sep. 13	Sep. 30	Pay case
Columbia	Watertown	286	M	Col.	5 yrs.	Sep. 13	Head	Dog	Micro.	Sep. 16	Oct. 7	Pay case
Polk	Mulberry	287	M	Col.	6 yrs.	Sep. 11	Head	Dog		Sep. 16	Oct. 6	Pay case
Duval	Jacksonville	288	M	Col.	12 yrs.	Sep. 14	† Ankle	Dog	Microsc.	Sep. 16	Oct. 3	Pay case
Santa Rosa	Milton	289	M	Col.	Adult	Sep. 10	Arm	Dog	Microsc.	Sep. 16	Oct. 3	Indigent
Polk	Bartow	290	M	Col.	6 yrs.	Sep. 11	Hand	Dog	Microsc.	Sep. 19	Oct. 6	Indigent
Hillsboro	Tampa	291	M	Col.	Adult	Sep. 15	Hand	Dog	Microsc.	Sep. 21	Oct. 7	Pay case
Hillsboro	Tampa	292	M	Col.	16 yrs.	Sep. 15	Head	Dog	Microsc.	Sep. 21	Oct. 7	Pay case
DeSoto	Wauchula	293	F	Col.	4 yrs.	Sep. 20	Scrotum	Dog	Microsc.	Sep. 23	Disct.	Indigent*
Hillsboro	Tampa	294	M	Col.	3 yrs.	Sep. 20	Arm	Dog	Microsc.	Sep. 24	Oct. 14	Pay case
Hillsboro	Tampa	295	M	Col.	5 yrs.	Sep. 19	Leg	Dog	Microsc.	Sep. 27	Oct. 14	Pay case
Alachua	Gainesville	296	M	Col.	Adult	May 5	Leg	Dog	Microsc.	Sep. 29	Oct. 14	Pay case*

OCTOBER

Duval	Jacksonville	297	F	Col.	Adult	Oct. 7	Wrist	Cat	Microsc.	Oct. 10	Oct. 31	Pay case
Duval	Jacksonville	298	F	Col.	Adult	Oct. 8	Thigh	Cat	Microsc.	Oct. 10	Oct. 31	Indigent
Duval	Jacksonville	299	F	Col.	Adult	Oct. 8	Thigh	Cat	Microsc.	Oct. 10	Oct. 31	Indigent
Duval	Jacksonville	300	M	Col.	Adult	Oct. 10	Finger	Dog	Microsc.	Oct. 12	Nov. 2	Indigent
Duval	Jacksonville	301	M	Col.	Adult	Oct. 10	Forearm	Dog	Microsc.	Oct. 12	Nov. 2	Indigent
Duval	Jacksonville	302	M	Col.	Adult	Oct. 8	Wrist	Dog	Microsc.	Oct. 12	Nov. 2	Indigent
Duval	Jacksonville	303	M	Col.	14 yrs.	Oct. 12	Wrist	Dog	Microsc.	Oct. 12	Disct.	
Hillsboro	Tampa	304	F	Col.	Adult	Oct. 12	Arm	Dog	Microsc.	Oct. 12	Nov. 9	Indigent
Duval	Jacksonville	305	F	Col.	3 yrs.	Oct. 17	Face	Dog	Microsc.	Oct. 19	Nov. 10	Indigent
Duval	Jacksonville	306	F	Col.	Adult	Oct. 17	Arm	Dog	Microsc.	Oct. 19	Nov. 10	Indigent
Hillsboro	Tampa	307	F	Col.	7 yrs.	Oct. 14	Leg	Dog	Microsc.	Oct. 23	Nov. 14	Pay case
Duval	Jacksonville	308	M	Col.	Adult	Oct. 21	Hand	Dog	Microsc.	Oct. 23	Nov. 12	Indigent
Duval	Jacksonville	309	M	Col.	4 yrs.	Oct. 21	Hand	Dog	Microsc.	Oct. 23	Nov. 12	Indigent
Hillsboro	Tampa	310	M	Col.	4 yrs.	Oct. 16	Leg	Dog	Microsc.	Oct. 25	Nov. 14	Pay case
Duval	Jacksonville	311	M	Col.	Adult	Oct. 18	Hand	Dog	Microsc.	Oct. 27	Nov. 16	Pay case

NOVEMBER

Hillsboro	Tampa	312	F	W	Adult	Nov. 1	Hand	Dog	Microsc.	Nov. 4	Nov. 22	Indigent
Duval	Jacksonville	313	F	W	3 yrs.	Nov. 7	Arm	Cat	Microsc.	Nov. 9	Nov. 24	Indigent
Duval	Jacksonville	314	M	W	Adult	Nov. 8	Leg	Dog	Microsc.	Nov. 11	Nov. 26	Indigent
DeSoto	Punta Gorda	315	M	W	3 yrs.	Nov. 9	Leg	Dog	Microsc.	Nov. 11	Disct.	
Hillsboro	Tampa	316	M	W	Adult	Nov. 10	Leg	Dog	Microsc.	Nov. 12	Nov. 27	Pay case
Duval	Tampa	317	M	W	Adult	Nov. 10	Leg	Dog	Microsc.	Nov. 13	Nov. 28	Pay case
Duval	Jacksonville	318	F	Col.	Adult	Nov. 12	Ankle	Dog	Microsc.	Nov. 14	Nov. 29	Indigent
Duval	Jacksonville	319	M	W	Adult	Nov. 11	Leg	Dog	Microsc.	Nov. 14	Nov. 30	Indigent
Duval	Jacksonville	320	M	W	Adult	Nov. 11	Wrist	Dog	Microsc.	Nov. 14	Nov. 30	Indigent
Hillsboro	Tampa	321	M	Col.	7 yrs.	Nov. 20	Leg	Dog	Microsc.	Nov. 23	Dec. 9	Indigent
Hillsboro	Tampa	322	M	W	14 yrs.	Nov. 21	Abd'men	Dog	Microsc.	Nov. 23	Dec. 9	Pay case
Gadsden	Greensboro	323	M	W	11 yrs.	Nov. 21	Hand	Dog	Microsc.	Nov. 24	Dec. 10	Pay case

DECEMBER

Bradford	Starke	324	F	W	12 yrs.	Mar.	Hand	Dog	Microsc.	Dec. 1	Dec. 10	Pay case*
Duval	Jacksonville	325	F	W	Adult	Nov. 30	Hand	Dog	Clinical	Dec. 2	Disct.	Indigent
Duval	Jacksonville	326	M	W	Adult	Dec. 1	Thigh	Dog	Clinical	Dec. 4	Dec. 22	Indigent
Duval	Jacksonville	327	M	W	5 yrs.	Dec. 1	Hand	Dog	Microsc.	Dec. 4	Dec. 23	Indigent
Orange	Sanford	328	F	W	5 yrs.	Dec. 2	Hand	Dog	Microsc.	Dec. 5	Dec. 23	Pay case
Duval	Jacksonville	329	F	W	9 yrs.	Dec. 1	Hand	Dog	Microsc.	Dec. 8	Dec. 26	Indigent
Duval	Jacksonville	330	M	Col.	Adult	Dec. 1	Hand	Dog	Microsc.	Dec. 8	Dec. 26	Pay case
Hillsboro	Tampa	331	M	Col.	9 yrs.	Dec. 10	Knee	Dog	Microsc.	Dec. 14	Dec. 31	Pay case
Hillsboro	Tampa	332	F	W	13 yrs.	Dec. 10	Foot	Cat	Microsc.	Dec. 15	Jan. 2	Pay case
Duval	Jacksonville	333	M	Col.	9 yrs.	Dec. 15	Arm	Dog	Microsc.	Dec. 17	Jan. 2	Pay case
Hillsboro	Tampa	334	M	Col.	3 yrs.	Dec. 15	Face	Cat	Microsc.	Dec. 21	Jan. 21	Indigent

*This was a case where patient was licked in the mouth by dog that afterwards became rabid. Treatment was discontinued, however.
 †This patient was treating a cow supposed to be sick, but which developed rabies. Patient came in contact with the saliva. Head was submitted to the laboratory and found to be rabid. Cases 248 and 249 are identical with this.

‡This treatment should not have been ordered or administered, as dog was not killed, and showed no signs of rabies ten days after bite.
 §This child was severely bitten in the face by a cat that proved to be rabid. Treatment begun July 28, and completed August 17. However, on August 21st child developed hydrophobia and died August 24th, just one month from time of bite.

§Case 280 was a man who was exposed to the saliva of a rabid horse.
 †Case 284 is that of a physician administering Pasteur treatment, who punctured his finger with a needle containing virus from a two-day cord. He was advised that treatment was unnecessary, but desired to continue treatment.

‡This child came in close contact with a dog that died from hydrophobia, and it was thought best to administer treatment.
 †Case No. 296 is that of a man who stepped off a train at Gainesville and was bitten by a dog, which was killed and head sent to the laboratory. It did not show that dog was rabid, but patient becoming nervous and worried over the affair, his physician ordered the Pasteur treatment in order to administer it to allay his fears.

‡Physician ordered treatment, but after treatment was started it was found dog was not rabid, and treatment was stopped.
 †This case is that of a child that was bitten in March by a dog that had been bitten by a rabid animal, and at the same time this child was bitten a colored boy was bitten, who developed hydrophobia November 23, and died November 30th.

REPORTS OF
ASSISTANT STATE HEALTH OFFICERS.

DR. HIRAM BYRD,

DR. C. T. YOUNG,

DR. E. W. DIGGETT.

FLORIDA STATE LIBRARY

Jacksonville, Fla., Jan. 1, 1913.

DR. JOSEPH Y. PORTER,

State Health Officer, Jacksonville, Fla.

DEAR DOCTOR: I have the honor to hand you herewith my annual report for the year ending December 31, 1912.

For the most part I have been detailed to duty in the executive office, hence most of my work has been of a routine nature, and is passed without mention.

But in addition to that, I have executed certain special details, reports of which are herewith submitted.

Very truly yours,

HIRAM BYRD,

Assistant State Health Officer.

REPORT OF DR. HIRAM BYRD.

OFFICE CORRESPONDENCE.

The office correspondence has amounted to 3,381 letters, or a little over ten a day. This in addition to cards, telegrams, etc.

The telegraphic correspondence concerning the report of plague in Havana and getting restrictions established, is recorded, as showing the part that Florida took in the situation.

Washington, D. C., July 5, 1912.

Porter, Jacksonville, Fla.

Rumors yet unverified plague Havana. Will wire further.

BLUE.

Washington, D. C., July 6, 1912.

Porter, Key West, Fla.

Plague in Havana.

BLUE.

Key West, Fla., July 6, 1912.

Blue, Washington, D. C.

Bureau telegram this date received. What special regulations or restrictions with Havana will Bureau direct? Recommend that steamers of Peninsular and Occidental Line operating between Havana and Florida ports, be prohibited from going to or laying at dock at Havana, and all transfer of freight from lighters in the harbor be done in daylight, with strict oversight of same to prevent infesting of vessels by rats from shore, and that the Bureau request each steamer to carry several ferrets, which animals I understand can be procured in Havana. I leave for Jacksonville tomorrow afternoon.

PORTER.

Key West, Fla., July 6, 1912.

Blue, Washington, D. C.

Press advices and passengers today state that more than one case of plague has occurred in Havana, and that a large area is infected. More than one death has occurred, and great uneasiness exists there on that account. People are leaving in numbers. Sixty passengers arrived here this afternoon for East Coast route and ninety by Olivette, the Tampa boat, indicating great alarm. With the period of incubation of plague six or seven days, permitting passengers from Havana into United States through Florida on a seven-hour travel period is in my opinion a hazardous proceeding, if conditions are as reported in Havana. I accordingly recommend to the Bureau that for the next sixty days, at least, no passenger be allowed into Florida from Havana without passing a detention of ten days at Tricornia. In addition to recommendation

wired the Bureau this afternoon it is further recommended that no shore leave be granted the crews of steamers plying between this port and Havana, and crated fruit be prohibited entry here.

PORTER.

Washington, D. C., July 7, 1912.

Porter, Jacksonville, Fla.

Your telegrams received. Bureau already imposed restrictions along lines proposed by you. Von Ezdorf now enroute.

BLUE.

Jacksonville, Fla., July 8, 1912.

Blue, Washington, D. C.

Consular bill of health issued Olivette, Havana, July 6th, steamer arriving Key West seven hours later, states under remarks: "All passengers have been carefully inspected; five refused as they came from infected zone and had some temperature." Engineer steamer Miami told Light three passengers rejected Saturday morning for same reason. Guiteraz quoted by Associated Press saying that mortality of rats has been great in the locality where the case of plague was discovered. It is fair to assume, therefore, that the infection covers a large area and cannot well be defined, for infected persons and rats may have scattered throughout the city. There is no desire or intention on my part to question the Bureau methods of management of this incident, but the people of Florida, and especially at Key West, are exceedingly uneasy, and enjoying their full confidence, they are appealing to me to prevent passenger travel from Havana to Florida ports. It seems to be my duty that as there is reasonable doubt as to the extent of plague infection in Havana, and as the ferry service between Key West and Havana is only seven hours, and less than twenty hours to Tampa, I should again urgently recommend and request of you to interdict for the present, passenger travel to Florida from Havana except passing through Tricornia Camp. Please answer.

PORTER.

Washington, D. C., July 9, 1912.

Porter,

State Health Officer,
Jacksonville, Fla.

As you requested, service officer, Havana, has been advised all passengers originating Havana bound for Florida, must be detained Tricornia seven days immediately prior embarkation, this until foci definitely located.

BLUE.

Washington, D. C., July 12, 1912.

J. Y. Porter,

State Health Officer,
Jacksonville, Fla.

Von Ezdorf inquires by cable whether you will permit first class through passengers to points outside Florida. Please answer.

BLUE.

Jacksonville, Fla., July 13, 1912.

Blue, Washington, D. C.

Von Ezdorf cables has defined infected area Havana, and is satisfied best hotels, best residences uptown and suburbs clean. Asks if I will accept first-class passengers from these clean districts. In accordance with stipulation in telegram this morning am willing to accept first-class passengers for and through Florida without detention from these clean districts who are certified to as free from infection by Von Ezdorf. Will you so notify him and wire me when you have issued instructions?

PORTER.

Jacksonville, Fla., July 13, 1912.

Blue, Washington, D. C.

Peninsular and Occidental Steamship Company here state no detention or oversight of passengers from Havana other than ordinary inspection at New York, Mobile or New Orleans. Please wire me what, if any, restrictions ordered by Bureau or enforced by these States or local health authorities against Havana on account of plague. Has extent infected area in Havana been satisfactorily and definitely outlined? Acknowledging Bureau telegram 12th, what guarantee does or can Von Ezdorf give that listed through passengers will not stop off in Florida? As soon as Bureau says that the infected area in Havana is known and under control, I shall be willing to permit passengers through and into Florida on certificate of Bureau officer at Havana.

PORTER.

Washington, D. C., July 13, 1912.

Porter, Jacksonville, Fla.

Replying to your message this date, following are the instructions for the present to Von Ezdorf at Havana: "Question is raised by State Health Officer, Florida, that passengers may proceed from Havana immediately to New York or New Orleans, continuing into Florida within period incubation regulation governing passenger travel from Havana to United States ports must be uniform. Therefore, until plague foci definitely outlined all passengers originating in Havana must be detained sufficient length time to cover period incubation to date arrival at United States ports and certified.

BLUE.

Washington, D. C., July 14, 1912.

Dr. J. Y. Porter, Jacksonville, Fla.

Have wired Von Ezdorf as follows: "If infected areas Havana have been defined you are authorized to accept without detention first-class passengers non-resident therein for seven days immediately preceding their application. Health Officer Florida accepts recommendation. Authorization covers all United States ports."

BLUE.

Jacksonville, Fla., July 30, 1912.

Von Ezdorf, Havana.

Is it true as reported that tobacco in bales and fruit rat-proof crated is forbidden as freight from rat-proof docks at Havana on Peninsular and Occidental steamers? Olivette said to be rat free now. Will enter and leave Ha-

vana by daylight. Do you consider it necessary to fumigate Olivette each trip at Havana, as sulphur fumes remaining in hold will injure tobacco. Cannot Olivette be fumigated if necessary at Port Tampa when remaining over each Wednesday night, under supervision of service officer at Port Tampa?

PORTER.

Havana, July 30, 1912.

Porter, Jacksonville, Fla.

General freight, tobacco, fruit, from rat-proof wharves accepted subject inspection only. Miami and Mascotte not allowed take cargo Havana. If Olivette certified rat free taking on cargo subject my regulations believe safe permit sailing without fumigation, but recommend fumigate Port Tampa after discharge cargo on account present orders Bureau must authorize this procedure.

VON EZDORF.

Washington, D. C., August 3, 1912.

Porter, Jacksonville, Fla.

To avoid detention Olivette overnight Havana for fumigation with consequent damage tobacco cargo from sulphur fumes, Von Ezdorf recommends Altree at Port Tampa fumigate Olivette when empty Port Tampa after discharge cargo, provided Olivette enter Havana morning and sail evening same day. If satisfactory wire your concurrence.

GLENNAN, Acting.

Jacksonville, Fla., August 3, 1912.

Blue, Washington, D. C.

Acknowledging Bureau telegram this date, Von Ezdorf's recommendations that Altree fumigate Olivette Port Tampa are satisfactory and concurred in.

Washington, D. C., August 12, 1912.

Dr. J. Y. Porter, Pensacola, Fla.

The following just received from Von Ezdorf: "Bills health will show sanitary condition port suspicious rat plague. No cases reported. Autopsies rats continue negative. My opinion plague conditions permit removal of passenger restrictions, but continuance of vessel and cargo precautions." Wire your comments.

BLUE.

Pensacola, Fla., August 12, 1912.

Dr. Rupert Blue, Washington, D. C.

Considering your experience with plague conditions and management am perfectly willing to accept your judgment in removing passenger restrictions from Havana.

PORTER.

Washington, D. C., August 19, 1912.

Porter, Jacksonville, Fla.

Referring your telegram August 12th Von Ezdorf wired as follows: "Referring your telegram 12th authorized to remove restrictions on all passengers from Havana except those residing between Cuba street and water front."

BLUE.

All passenger restrictions were removed August 26th.

LECTURES.

It is believed that lectures is the most effective way of educating the public along health lines. To this end as much time has been devoted to that as possible, which, unfortunately, has been all too little, less than a dozen lectures having been given during the year.

Virginia has arranged a system of lectures for the state that might well be copied. Not only are the several attaches of the Board scheduled for lectures upon particular subjects, but other officials and friends not connected with it, have very graciously agreed to fill appointments, so that the Board of Health is in effect a sort of lyceum bureau, and is enabled, with very little cost, and very little loss of time for any one individual, to furnish lectures upon any ordinary phase of the public health, to any community that may wish it. Such a system of lectures is earnestly recommended for Florida.

DISTRIBUTION OF LITERATURE.

The following table of distribution of literature is self explanatory. There is one feature, however, that this table does not cover, namely: the amount of matter issued by this office that is republished throughout the state in the county papers. How much this amounts to, we have no way of estimating, since only a few of the county papers come to the office. The following is a list of the papers that come regularly:

DAILY.—St. Augustine Evening Record, Gainesville Daily Sun, Pensacola Journal, Key West Citizen.

WEEKLY.—DeSoto County News, Chipley Banner (Chipley), Manatee River Journal (Bradentown), Times-Courier (Marianna), Palatka News (Palatka), Floridian (Jacksonville), Palm Beach County (West Palm Beach), East Coast Advocate (Titusville), Fort Myers Weekly Press (Fort Myers).

SEMI-WEEKLY.—Tallahassee True Democrat, Healthy Home.

MONTHLY.—School Exponent.

The office has in time past received the Jacksonville papers, but since we have been in the new building, these have gradually been more and more irregular, till now they never come. The Pensacola Journal comes regularly.

It is accordingly impossible to keep any sort of tab on the amount of public health material that finds its way out through the state press. It is believed, however, that it is considerable.

It is believed that the press, next to the lecture, is the most powerful means of education. The states that make most liberal use of the lecture platform in pushing the public health work, are always in the lead. Next follows those that make most liberal use of the press. In Virginia, for example, they have a very admirable arrangement. They have a newspaper man connected with the Board. He is paid a small sum—it used to be \$20.00 a month—and he sets public health matter in newspaper style, and gives it the proper publicity. The State Board of Health of Florida needs, most of anything, a good live press agent. To my mind there is no other expenditure of, say, \$250.00 a year, that would yield one per cent. of the returns in dissemination of public health information that that would.

When it is remembered that public health is little more than public education, and remembered further that the total amount of literature sent out during the year, would only give one item to every thirteenth person in the state, it will be seen at a glance how very slow the process of education at the present rate must necessarily be. Next to the vital statistics, the publicity work of the Board is most in arrears.

DISTRIBUTION OF LITERATURE

Subject.	No. of pieces mailed to Fla. address.	To other States.	Foreign Countries.	Totals.
Annual Reports	488	200	20	708
Extra copies Health Notes	150	251	6	407
Hookworm Disease:				
Booklets, Publication 79	831	24	2	857
Leaflets, publication 76	2513	25	2	2540
Housefly:				
Posters	307	97	7	411
Pamphlets	302	39	5	346
Malaria, Publication 84	886	29	3	918
Mosquitoes, Publication 87	102	23	2	127
Sewage Disposal, Publication 78	587	12	1	600
Spitting Prohibited	214	—	—	214

STATE BOARD OF HEALTH OF FLORIDA

Tuberculosis:			
Folders	15	5	20
Posters	110	11	121
Booklets	10	3	13
Typhoid Fever, Publication 88	794	60	857
Ophthalmia Neonatorum Publication 86 ..	25	5	30
Hog Cholera, Publication 89	859	10	870
Hog Cholera Supplement	366	—	366
Hog Cholera and Lung Worm, Pub. 97 ..	149	10	159
Smallpox, Posters and Placards	200	16	216
Miscellaneous, including laws, rules and Government Publications	504	104	606
Totals	9412	924	10386
Florida Health Notes: Regular mailing list, 12 issues	49286	5340	55286
Total number pieces distributed	58698	6240	65672

SMALLPOX.

There were reported to the office during the year, 1,713 cases of smallpox. It is believed that this does not represent more than half of the cases that actually occurred. A few instances will indicate what this belief rests upon.

In November a case of smallpox was reported at Palmetto. Going to Palmetto, two cases were found. A canvass of the negro settlement known as Memphis turned up nineteen others that had had smallpox within the last two or three months.

Again, a case was reported at Citra. Upon investigation it was found that this was the last person in an entire community in the vicinity of Sparr, to have the disease, that it had been smoldering there all the summer, and when finally reported, this case was in the only family that hadn't already had it.

These instances also indicate with what placid indifference the disease is regarded.

They also indicate how smallpox may exist under cover for a long time without ever coming to light.

Gradually but surely two lessons are being learned: One is, that the disease is usually of little consequence when one has it, and the other is that most people sooner or later are exposed to it, and then, if not vaccinated, are its easy prey. To state it another way, the people are gradually but surely learning that smallpox

cannot be prevented by quarantine, and vaccination can be relied upon. State Boards of Health all over the country are more and more turning away from quarantine. The office is today in receipt of an unofficial letter from one of the State Boards of Health adjoining us in which it is stated that their policy is more and more to quarantine none—those that refuse vaccination will have to take their chances with the disease. In fact, many of the states have formally abandoned quarantine in the management of smallpox, because it is universally found that quarantine is a feeble attempt to postpone the disease while what is desired is not postponement but prevention. Among the states that have abandoned formal quarantine against smallpox, may be mentioned Florida, Minnesota, North Carolina, Georgia, Washington and Montana. The results have been very satisfactory. Where formal quarantine is abandoned, the opposition to vaccination becomes less and less, and smallpox becomes more and more confined to the uninformed.

Certain comment should be made on the number of cases of smallpox in the state as compared with other states. The only way we can compare the numbers is by the data furnished by the Bureau of Public Health. And this in turn has to depend upon the states to report the cases to the Bureau, so that where the states do not report the disease, the Bureau never hears of it. The net result is that the states having the more active health organizations report the largest number of cases. *The number of cases reported to the Bureau of Public Health is a better measure of the activities of the boards than of the prevalence of the disease.* Hear what Assistant Surgeon-General Trask says on this point:

From such information as was obtainable during the year 1911, the disease appears to have been equally prevalent, if not more, in the States from which no reports were received. The fact that certain States did not report on the prevalence of the disease *was not due to absence of cases of smallpox within their territory, but to an absence of laws requiring the notification of cases, or in the presence, a failure to enforce them.* It must not, therefore, be understood that the States enumerated in the tables which follow later had more smallpox than the States that do not appear. In fact, many States that are not mentioned because of lack of the necessary reports are known to have been heavily infected. *The States included in the tables are those having the better laws and more effective health departments.*

The present management of smallpox in this state is fairly satisfactory and grows more so each year. It resolves itself into two

classes: First, *the management of cases not reported*, and second *the management of cases that are reported*.

Of the first class, *not reported*, no cognizance is taken. They are free to do as they please, just as they are everywhere else in the world. They stay in or stay out just as they like. They come and go at their own sweet will. They go from country to town, or from town to country. They go from county to county or state to state. They even cross the Canadian line back and forth as they like. They ride on Pullman trains if they are so inclined, and no one to say them nay. One came into Jacksonville from Albany, Georgia, yesterday on the Seminole Limited. They expose to the disease whoever they chance to come in contact with, whether many or few.

While I write these words our inspector comes in and reports a case developed in one of the suburbs of Jacksonville. The inspector saw him and sent for the wagon to take him to the hospital. While he was gone the case got up and left. This was yesterday. Today we learn that he took the train for Georgia. And so it goes. No one has yet suggested an effective method of management of cases that are not reported, and cases that run away. The courts offer a remedy. Their remedy is to punish the culprits after it happens. But that doesn't prevent it happening. It is this class of cases that keeps the disease spreading. *This is a challenge to any one to tell us how to manage unreported cases.*

To manage the other class of cases, *the reported cases*, is not difficult. When a case gets into a family and it is reported early, the others are all vaccinated. They rarely offer any objections in the presence of the disease. That stops it with the one case. The case itself is by way of ceremony forbidden to leave his premises, but that is unnecessary, when the community is vaccinated. That is the whole story. For example:

A case developed last week at Volusia. This is a new colony in the state. It was immediately reported to the State Board of Health. Next train took an officer to the ground. He vaccinated every person in the village. That was the last case of course. It was not necessary even to confine this patient to his home. He could go where he pleased in the village, since the others were all vaccinated. None would, none could, have the disease. Easy that.

POLICIES.

In the management of public health affairs, there are many points at which opinion, even among health officers, is not uniform. For example, the State Health Officer of Colorado, recently gave utterance to the expression that a leper should not even pass through the State of Colorado. At the same time the health authorities of New York disregard the disease entirely, and lepers are allowed to go and come at their own sweet will in that great metropolis. This is mentioned to show how widely public health opinions may differ. It will be seen later that leprosy is not the only subject upon which opinions differ.

QUARANTINE.

Nine years ago the Assistant State Health Officer was writing his first annual report. In that report he said: "I have had little recourse to guard service (in the management of smallpox) and that little has been both expensive and unsatisfactory." (See Fifteenth Annual Report of the State Board of Health of Florida). The following year, in his Second Annual Report he says: "By far the greater part of my work relates to smallpox. I have not had recourse to guard service in the management of smallpox this year." This was 1904, and from that date the State Board of Health has not employed a guard in the management of that disease. The only quarantine thrown around smallpox is that thrown around it by law.

So far as known, Florida was alone in abandoning shot-gun quarantine against smallpox at that time. But in 1908, Minnesota followed suit. And now some six states have done likewise.

A year ago this office took a very strong and determined position against quarantining infantile paralysis. It did this for the reason that the epidemiology of the disease did not warrant it. It was alone in that for all other states, so far as known, insisted on quarantining it. The great City of New York was very persistent.

Again the action of Florida has been found to be the correct one: It has been shown by Rosenau, and confirmed by Anderson, that infantile paralysis is transmitted by a biting fly, the *Stomoxys calcitrans*, and it is seen that quarantining the disease has about the

same efficacy in preventing its spread that perforating letters had in preventing the spread of yellow fever. Of course all the boards of health have not formally abandoned quarantine against it yet, for some have been so rabid on the subject that they don't know how to let go gracefully, and others haven't had time to get their elaborate ordinances and rules made over; but in the course of time all will swing into line, some of the slower ones straggling along months after the main procession has passed.

Again: Cerebro-spinal meningitis is another disease that is from an epidemiological standpoint, to be classed with infantile paralysis. It occurs somewhere nearly every year. As a rule there is a center where the disease is more prevalent than anywhere else. This might be called the center of intensity. At the same time there will be found scattered all over the country isolated cases. Quite recently, for example, the disease appeared in the United States. The center of intensity was in North Georgia. At that time this office predicted that a sprinkling of cases would occur all over the section of the country. One has already appeared in Live Oak, another in Ocala and one in Tampa. We will yet hear of others. Just as it was last year when the center of intensity was in Texas, there was a case at Charleston, one in Mobile, two in Jacksonville, and a sprinkling here and there remote from Texas, and in no wise connected with it. In 1904 the center of intensity was in Madison, Fla. At that time cases occurred in Fort White, Dunnellon, Jacksonville, Plant City, Greenville, and probably others that we never heard of. Quarantine has no more effect upon the spread of the disease than it did for old King Canute to quarantine the waves. Recently Dr. Frost, of the Public Health Service, has given utterance to some guarded expressions along this line. It augurs well. In the course of time, quarantine will be relinquished against cerebro-spinal meningitis.

Perhaps the most muddled thing in the calendar is diphtheria. This arises from the fact that the "carrier case" is overworked. In 1907 The American Public Health Association, in Atlantic City, agreed that restrictive measures against a child are justifiable on account of diphtheria, *only when both the symptoms and germs of the disease are present*. So long as that rule, which is a wise one, is observed, little confusion arises.

But when the health officer begins to poke around in the throats of well children, and tell them that they are "Carriers" and that they must stay away from school and be quarantined, and a few other such inconveniences he brings himself and the cause that he is trying to serve into bad repute, while the only thing that he has to show for his pains is the doubtful satisfaction of being orthodox.

Dr. Charles Sheard, Chief Medical Officer of Toronto, is not orthodox, and would be ruled out by any bacteriological court, but after all, what he says sounds like an echo from the firing line. Dr. Sheard relates as follows: "We had," he says, "a child whose throat was said to be affected, and on taking swabs we found the *diphtheria bacillus*. This child was isolated from week to week, and we still continued to find it. After eight weeks the father again brought in a swab, which on being examined, was found to contain the bacillus. He became very indignant over it, as the swab had been taken from the throat of another person. After being discharged this child was carefully watched. She nursed a family of eight children and not one of them had diphtheria. To further exemplify this we took swabs from the throats of all the occupants of our institutions and found the bacillus present in 20 per cent. of the cases examined. Further, I say that in cases of scarlet fever, especially where you have nasal irritation during the third week, the Klebs diphtheria would be found in 40 per cent. of the cases. At first these discoveries used to alarm us, but now we ignore them. We don't treat them and they don't infect anyone. * * * Clinical diphtheria and bacteriological diphtheria are totally different things. The latter can be ignored, but the former must be protected. All our statistics are on a bacteriological basis, but we are wrong. The boards of health are, I think, catering more to public sentiment than to medical science."

This is not a wholesale endorsement of Dr. Sheard's position but it merely directs attention to the fact that among men of wide experience, and men whose views are entitled to the highest respect, there are those who do not subscribe to the orthodox views of the times.

I might sight further the recent action of one of the most progressive western boards of health, Washington. They have abandoned quarantine in all diseases except diphtheria, and Dr. Kelly

told me that they seriously considered taking it off of that. Action of this kind is not merely meant to be obstreperous—it is official declaration of honest convictions that quarantine is overworked to the detriment of both public convenience, and indirectly, public health, in that moneys and energies that ought to be put to some useful purpose are being squandered in chasing will-o-the-wisps.

VITAL STATISTICS.

The weak point of the State Board of Health is its vital statistics. Although there has been a law on the statute books for several years, it has proved impossible to effectively carry it out. There are two reasons for this: One is that, in a sparsely populated state vital statistics are difficult to collect as compared with a state more densely populated. The other is, that the law is based on one fundamental error, viz: That the responsibility of making death and birth reports rests upon the physician. This leaves Florida practically without vital statistics except in the municipalities of Jacksonville and Key West.

The United States government is very desirous of having vital statistics covering the whole country. This is impossible as long as there is a state without adequate records, of which there are several, but the fact that all states do not furnish accurate statistics has not stood in the way of the United States Government collecting statistics that are usable. The states and municipalities that collect accurate statistics are designated as "within the registration area." This area covers about fifty per cent of the population of the country. It is thoroughly possible to inaugurate a similar line of procedure in Florida. In fact, we have now two cities which might be termed in the registration area, viz: Jacksonville and Key West. It would not be very difficult to extend the registration area to cover all of the cities of, say 2,000 and above. If that were done, we would have statistics covering some 28 cities, and nearly one third of the population. These would be distributed over the state in such a way as to enable us to draw statistical conclusions with a fair degree of accuracy. In that event they would be almost as valuable as state-wide statistics.

TYPHOID FEVER IN TAMPA, FLA.

STUDIES ON AN OUTBREAK OF TYPHOID FEVER AND AMOEBIC DYSENTERY.

CONJOINT REPORT OF DR. HIRAM BYRD AND DR. CHAS. W. BARTLETT.

During the early spring months of 1911, just before and just after the closing of the Belleview Hotel at Bellair, some ten of the guests of that hotel developed typhoid fever. Among them Dr. Murphy of Chicago. Whereupon the management engaged the services of Dr. Jordan and Irons of Chicago to make an investigation of the trouble.

Dr. Irons came down to Florida, studied the situation two or three days, returned and reported that the source of infection was in the cream furnished the Belleview Hotel by the Tampa Dairy Company. Among other things he reported that during the months of March and April there were conservatively stated, fifty to two hundred cases of typhoid fever in Tampa.

His report gave rise to a great deal of talk, not only in Tampa, but throughout the state, and even beyond its borders. The rumors became exaggerations until credulity would stand for no more. At this juncture I was detailed to Tampa to study the typhoid situation and report to the State Health Officer.

It is not my purpose to review that report in this connection further than to say that a careful study of the situation, covering some two weeks spent on the grounds, and collecting all available evidence, I was forced to the conclusion that the number of cases had been grossly exaggerated: That instead of 50 to 200 for two months, I was only able to get record of 121 for the first six months of the year. I was furthermore forced to the conclusion that the alleged carrier case of typhoid had played no part in the prevalence of the disease, and that if milk had been a factor at all, it had been in a secondary manner: that the typhoid prevailing there at the time was of fly origin, and I was able to predict that it would continue till the open closet problem was solved, running alternately high in

the summer when the flies prevail and low in the winter when flies are fewest.

This prediction was fulfilled. The number of cases based upon examinations made by the laboratory reached 41 in June, when it began to decline, and by November reached the low mark of 2. Then suddenly and contrary to all expectations it began to spring up. Six examinations were made in December, 17 in January, 30 in February.

Preliminary note:

Politically, Tampa and West Tampa are two separate municipalities, but for purposes of this discussion, the aggregate of people, composing both, together with those around the periphery will be considered in three grounds, as follows: That portion east of the Hillsboro River, aggregating some 36,000 people, will be known in this connection as East Tampa; that portion west of the Hillsboro River and north of the Atlantic Coast Line Ry., will be known as West Tampa, and the portion south of the A. C. L. Ry., will be known as Hyde Park.

The East Tampa group consists of almost equal numbers of Latins and Americans, and aggregates some 36,000 people. The West Tampa group is almost pure Latins, some twelve thousand. While the Hyde Park Group is almost pure American, about six thousand in numbers.

Hyde Park is the best residence section of the city. It is well paved, screened and sewered. A pretty thorough canvass of the place only revealed three surface closets. At the foot of Platt Street, is a sewer emptying onto the beach, the exit of which is above water even at high tide, and further down the beach is another similar exit. But these are well flooded and it is doubtful if any harm would come from them.

East Tampa is not so well sewered as Hyde Park, although a large portion of it has sewer connections. Still, in the sewered territory, there are approximately a thousand surface closets. There are two systems of caring for the surface closets. Where they are so located as to be of easy access to the wagons, they are left dry, and are cleaned by the city. But a large number of surface closets are not accessible to the wagons and these have buckets. Altogether there are some six or seven thousand buckets in use. Of these 36

thousand people it is estimated that some fifty per cent use surface closets.

In West Tampa, the sewerage system is very incomplete. While the municipality has installed sewers along certain streets a very large portion of the city is still unsewered, and a large portion of that which is sewered is apparently unconnected. And even where houses are connected, in many places they are in close juxtaposition to houses that have surface closets.

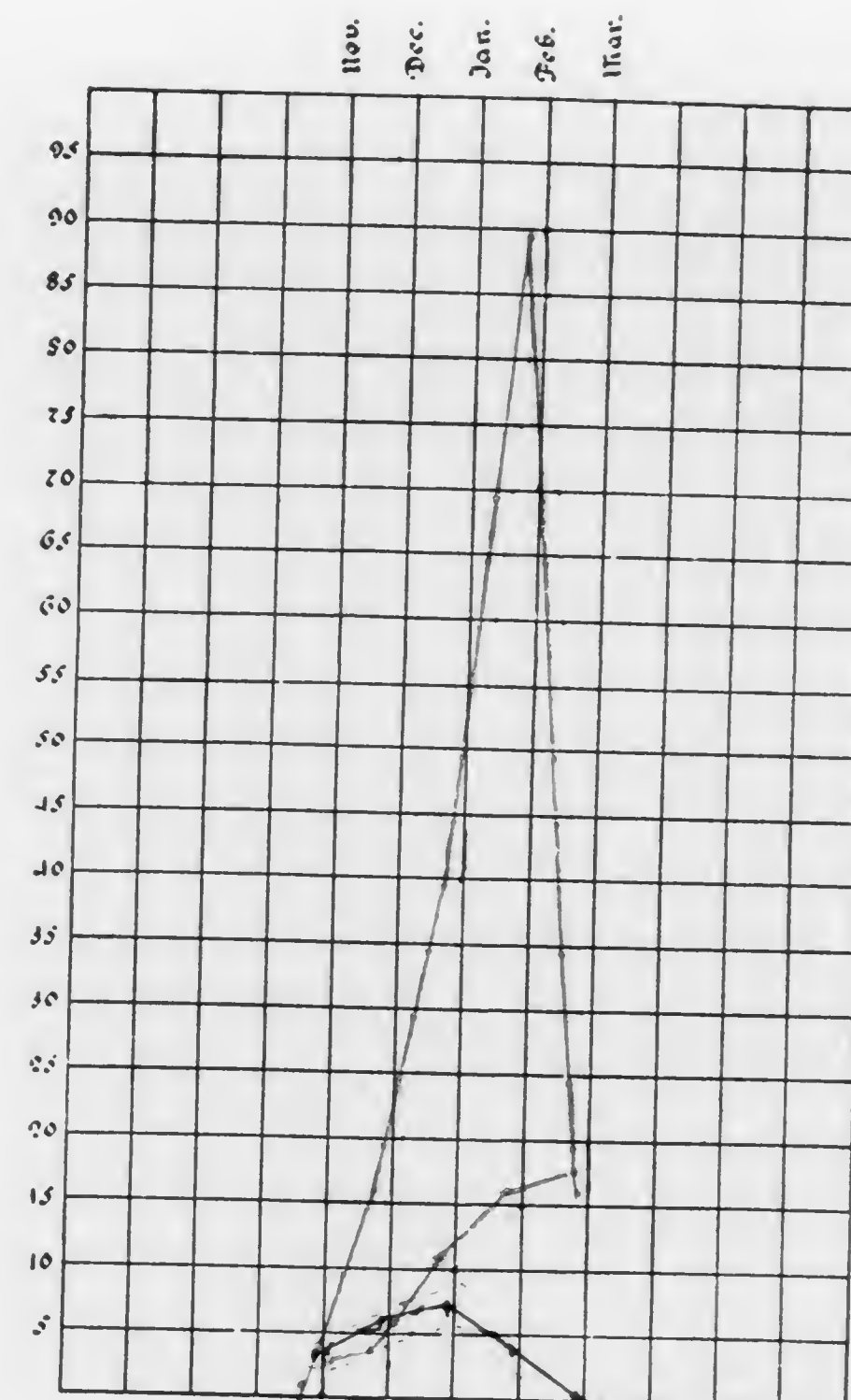
CASES.

To work up the epidemiology of an outbreak of typhoid fever like the one in Tampa is not always easy. Where the records of cases and of deaths are incomplete the task becomes doubly difficult. And this was the case in Tampa. Not more than 25 per cent of the known cases were reported to the city board of health. And of those reported, the information given was too fragmentary to be of any value. The deaths are reported with more accuracy. In estimating the number of cases of typhoid fever, it is sometimes customary to multiply the number of deaths by ten. There were 29 deaths reported to the city board of health in Tampa in 1911. This multiplied by ten would give 290 cases. And this is exclusive of West Tampa, which is a separate municipality.

The State Board of Health laboratory located in Tampa is called upon to make blood tests in suspected typhoid fever. In this way 166 diagnoses were made in the year, exclusive of West Tampa. Such records are incomplete, for in many instances specimens are never submitted for examination. But incomplete as they are they are by far the best case records we have.

A feature of these laboratory reports that must be taken into account is the fact that they are more accurate for the American, than for the Latin population. Social status probably plays a part. Among the more prosperous, a physician is called for slighter indisposition than among the poorer, so that fewer cases escape detection. Again, the physicians who practice among the better-to-do are usually those that give close attention to details and fewer cases are diagnosed without laboratory confirmation. The population of Hyde Park, including Suburb Beautiful, is almost exclusively American, and of the more exclusive Americans. The popu-





RELATIVE INCIDENCE CURVES, TYPHOID IN TAMPA, 1911-1912
 RED—HYDE PARK.
 GREEN—EAST TAMPA.
 PURPLE—WEST TAMPA.

lation of West Tampa is almost pure Latin, while East Tampa has a mixed population, about half and half American and Latin. Consequently the laboratory records are approximately complete for Hyde Park, less complete for East Tampa, and least complete for West Tampa. In fact, the laboratory records show only eight cases for West Tampa during the year although Dr. Howsley estimates that there were approximately 100 cases in the city.

With the admitted inaccuracies of the case records at one's disposal, we believe they can be trusted to show the direction that the curve takes, if not its height.

But when we come to compare the curves of East Tampa, West Tampa, and Hyde Park, a new variant is introduced. The complete records of Hyde Park will make it appear disproportionately high, or better stated, the incomplete records of East Tampa and West Tampa, make them appear disproportionately low.

But beginning with December and running through March, it is believed that nearly all cases were reported, and in all parts of the city. The doctors were interviewed and every case that could be located by every means was taken into account and reduced to a uniform population basis, and plotted as curve ----- After all possible error is allowed for, the tremendous difference will be seen at a glance. Nothing short of a wholesale pollution of food supplies will account for it.

AMOEBIC DYSENTERY.

For the last several years, (fifteen or twenty) an occasional case of liver abscess has appeared on the scene in Tampa. It is only within the last five or six years that bacteriological examinations have been made to any extent in the state, and only since 1910 have laboratory facilities been easily available in Tampa. During the year 1911, prior to December, three cases of amoebic dysentery (one imported) were diagnosed by the laboratory. In December there were 3, January 5, and February 7. Dr. Lawrence and others who have been in practice in Tampa for many years, are of the opinion that during the four months from December to March inclusive, more cases of amoebic dysentery have occurred in Tampa than in a dozen years altogether previously.

And what is more, heretofore, it has usually been confined to

the Latins, usually Italians, but now it is among Americans, and mostly in Hyde Park.

This to us seems more than accident, and throws valuable light on the situation. Since amoebic dysentery lighted up at the same time that typhoid did, giving a parallel if not so high a rate, and in the same locality, and having crossed the city to get there, and likewise having crossed the line of nationality which it has apparently not done before, we feel justified in assuming that the two diseases have a common source of origin.

And this brings us face to face with the methods of infection in amoebic dysentery. Not the "possible" and theoretical methods, but the actual methods by which it is transmitted in epidemic proportions. And this narrows down to water and food polluted with entamoebae. Musgrave and Clegg, in Manila, assuming that it is transmitted in no other way, and instituting prophylactic measures accordingly, had only one-tenth the amoebic rate among the soldiers that they had among the civilian employees of the Government. It is possible that the amoeba may be transmitted in other ways, but this is the only way as yet so definitely proven.

WATER.

The following notes on the water supply of Tampa were kindly furnished by Mr. McFarland, who has charge of the water plant in behalf of the Tampa Water Company.

REPORT OF WATER SUPPLY, TAMPA WATER WORKS CO.

The water supply is taken from artesian wells located along the north and east bank of the Hillsboro River between Estelle Street and the bridge across the river at the north end of Garcia Avenue.

There have been twenty-six wells completed on this property and there are now in use eighteen which vary in depth from 165 to 328 feet. These wells are all what is known as 10 inch wells. They are cased with 10 inch casing from the top of the ground down to the rock so as to shut out all surface water. The pressure on these wells when they are all shut off indicate that they have a head from 12 to 17 feet above mean sea level. The formation

in the territory described seems to differ very materially. It was found necessary to use casing in these wells from a minimum of 56 feet to a maximum of 146 feet. A record was kept of the formation in most cases. In other cases it was only kept until such depth as a water bearing rock was found.

There is one well above the bridge which is known on the records of the water company as well No. 20. This being the one furthest up the river we include statement of the formation.

From Surface.	To.	Feet Made.	Formation.
0	22	22	Sand and clay.
22	31	9	Soft rock.
31	55	24	Clay mixed with dark sand.
55	63	8	Blue clay, stiff with green cast.
63	64	1	Hard flinty rock.
64	67	3	Gray hard rock.
67	82	15	Grayish rock medium hard.
82	87	5	Whitish rock, soft.
87	97	10	Whitish rock, medium hard.
97	102	5	Grayish rock.
102	152	50	Medium hard rock, gray in color.
152	154	2	Gray, porous rock medium hard water bearing
154	155½	1½	Flinty rock, no water.
155½	181	15½	Gray porous rock, strongly water bearing.
181	183	2	Gray rock, no water.

There were 52 feet and 4 inches of casing used in this well which was driven in the rock and blue clay so as to exclude all surface water. This water was analyzed when the well was completed, by Booth, Garrett & Blair of Philadelphia. Report as follows:

	Parts per Million.
Total Solids	430.
Volatile Solids	70.
Fixed Solids	360.
Nitrogen as free Ammonia	0.034
Nitrogen as Albumoid Ammonia	0.008
Nitrites	None
Nitrates	None
Chlorine	132.
Alkalinity	110.
Hardness	156.7

The Chemist states that this water is a good quality for domestic purpose and for drinking.

The well about 150 feet south of this had a much different surface formation and it was necessary to use 146 feet of casing

to shut out all surface water. The well located at the extreme lower end of the water supply in Estelle street, near Highland avenue, is known to the Water Company as Well No. 19 the record is herein given so as to show the two extremes from which the water is taken. This well is 250 feet deep. The record taken at the time of the sinking of this well was as follows:

From Surface.	To.	Feet Made.	Formation.
0	16	16	Sand.
16	39	23	Soft rock.
39	64	25	Clay, dark blue of green cast.
64	66	2	Rock.
66	100	34	Dark blue clay.
100	120	20	Soft rock, some water.
120	125	5	Hard rock.
125	145	20	Soft rock, some water.
145	150	5	Medium hard rock.
150	161	11	Soft rock, some water.
161	173	12	Very hard rock.
173	188	15	Soft rock with streaks of clay.
188	195	7	Soft rock with streaks of clay.
195	205	10	Very hard rock.
205	240	35	Soft rock.

This water has been analyzed by Booth, Garret & Blair of Philadelphia, who report as follows:

	Parts per Million.
Total Solids	331.
Volatile Solids	36.
Fixed Solids	295.
Nitrogen as free Ammonia	None
Nitrogen as Albuminoid Ammonia	0.006
Nitrites	None
Nitrates	None
Chlorine	100.
Alkalinity	130.
Hardness	142.5

The Chemist reports that this water shows no indications of organic pollution, and they consider it good quality for domestic purpose and drinking. All of these wells when they were completed had samples taken and sent to the chemist in Philadelphia, and in all cases were not added to the water supply unless the report was satisfactory. In case the well showed large quantities of chlorine it was excluded, not because it was believed to be unhealthy, but because it made the water unpalatable. Strange to

say, in some instances where the water seems to come from the same formation and the same level the water carries much more chlorine than in others and in one particular instance, the water when first analyzed showed a much larger proportion of chlorine than it did in after years and does now. This, to my mind, indicates that this water is passing through or over some formation in which there is a large quantity of salt. To my mind the presence of chlorine does not indicate pollution, but indicates there is some source from which this water is taking up the salt as deposited in the earth. These wells have a connection to a conduit which is laid about 4 feet below mean sea level, and by this connection the water is conducted to the receiving well at or near the pump house. From this receiving well the water is taken by the pumps and delivered into the distribution system supplying the city of Tampa and West Tampa. Therefore, there does not seem to be any way in which this water can be contaminated and be unwholesome.

This company has made diligent search of a supply and has had analyses made of every possible source of supply within ten miles of the city of Tampa, and it has been the observation of this company that there is no other source of supply which would be as satisfactory to the public as that which is now being delivered to them.

The analyses of the water east of the city indicates that it is of the same quality as that which we are now supplying, but for your information I wish to state that it is seldom that the analyses from two different artesian wells are the same. They seem to vary in the same locality, but the most pronounced variation is the total amount of solids and the total amount of chlorine carried in the water.

In addition to this, Dr. G. H. Simon, of the State Board of Health laboratory, Tampa, kindly made bacteriological examinations and reported as follows:

"As requested, we made a series of examinations of the city water supply, more especially that portion of it relating to Hyde Park and Suburb Beautiful.

"The first specimen obtained was from the residence of Mr. Hewitt Hill, 106 Plant avenue. At this place the water faucet

was on the porch at the rear of the residence, unprotected from dust and dirt of the street.

"The second specimen was obtained from the residence of Mrs. S. Barrett, 707 Boulevard. At this place the faucet from which the water was taken was located in the kitchen.

"The third specimen was taken from the residence of Mr. Wiggins, 911 South Oregon street, at which place the water faucet was also in the kitchen.

"In each instance we endeavored to avoid having the water contaminated from the outer surface of the pipes, etc., by first going over the faucet with an alcohol flame, after which the water was allowed to run a few minutes before taking sample for examination.

"Of the three samples taken, but one showed evidence of contamination, that from 106 Plant avenue, the other two being absolutely negative. In spite of the extra precautions taken to avoid any outside contamination, I am of the opinion that in this one instance the situation of the faucet on the back porch, where it was exposed to the dust from the street, owed its contamination to a few organisms that escaped the effects of the alcohol flame, and came from the street or from other sources rather than from the city water supply. This is substantiated by the fact that the other samples of water taken showed absolutely negative results for sewage contamination."

With this evidence before us, we couldn't but consider the water entirely exonerated.

FLIES.

It is our experience and belief that flies constitute the chief source of typhoid infection in this state. Year by year the evidence to this effect is accumulating. The anti-fly crusade which has swept the world, and in which Florida has had a conspicuous part, is the outcome of that belief, although it is only recently that Faichnie has shown the exact role that flies play in the dissemination of this disease. We had formerly supposed that the chief danger lay in flies feeding on typhoid excreta and then walking over food, spreading the infection in their wake. Faichnie found that this is not the chief manner in which flies spread typhoid fever. He found that when they were bred in typhoid stools, they became

infected with typhoid bacilli while yet maggots, and that they carried this infection through the pupal stage, and emerged as adult flies already carrying typhoid bacilli in their intestines, and spreading them in the excreta; that they remain typhoid carriers the balance of their lives. He found that it is rare for flies not bred in typhoid excreta to transmit the infection merely by visiting the excreta and bearing it away on feet and wings and body. He says:

"Experience seems to show that infection conveyed by flies' legs, natural though it may appear from all the experiments carried out to prove its possibility, is not a common, nor even a considerable cause of enteric fever, in time of peace at any rate. On the other hand, infection by the excrement of flies bred in infected material explains many conclusions formerly difficult to accept. In other words, it is the *breeding ground* that constitutes the danger—not the ground where flies feed." (Journal Royal Medical Corps. Nov. 1909. Cit. Balfour.)

It might be observed in passing that this is an important point and not sufficiently appreciated. It gives the cue to a logical attack on flies. If we had to eliminate flies in order to get rid of typhoid fever the task would be impossible. But if this observation of Faichnie is extended and verified, it will at once indicate that all we have to do to eliminate the fly from the typhoid question is to so dispose of sewage as to keep him from breeding in typhoid excreta.

In the present outbreak, it is impossible to reconcile the proposition that it might be fly-borne, with the fact that the highest curve was reached in the best sewered and screened part of the city, and at the time of year when flies are fewest.

MILK.

In the absence of reliable case records, it is even more difficult to establish the guilt or innocence of milk than oysters. It is used in so many forms, and by so many people. Here again we have to resort to broad epidemiological principles. And in the outset, that we may be better understood, we would emphasize the following facts:

1. That when milk leaves the udder of a healthy cow it is clean.
2. It may become contaminated in the following ways:

a. By flies that have bred in typhoid stools—and to a certain extent by flies that have merely fed on typhoid stools. Such flies walking over the milk vessels, falling into the milk, etc., are likely to spread the infection of typhoid fever. But typhoid fever transmitted in this way should not be designated milk-borne, but fly-borne. This will be considered further under the caption of flies. It is not known if amoebic dysentery can be transmitted by flies.

b. By the dairyman leaving a milk bottle at the home of a typhoid patient and calling for it in his rounds next day. It is possible for the bottle to get infected and when, if not properly cleaned before being filled again it will be an infected bottle likely to be delivered somewhere else on his rounds. This is a theoretical consideration, but of very minor importance in an epidemic, since all cases transmitted in this way are secondary cases.

c. By a milker who had had a mild case of typhoid fever, or who has had the disease and is still excreting typhoid bacilli. Typhoid fever in the family of a careless dairyman would be almost as dangerous as if the milker himself were a carrier case. Typhoid fever transmitted in this way is designated milk-borne. It is not known if amoebic dysentery could be transmitted this way from an amoeba carrier, but the danger would probably be infinitely less than in the case of typhoid fever, because the typhoid bacillus grows readily in milk, while the entamoeba is difficult to grow artificially under any circumstances.

d. By watering milk with contaminated water. This is little more than a theoretical consideration, in this State, at least, for it has been shown that contaminated water is very rare in Florida. In fact, we have record of only one instance. But on the contrary a considerable number of examinations, all of which have been negative, furnish stronger and stronger evidence that contaminated water is hardly to be reckoned with. How rare it is to have milk watered we would not undertake to say, but considering the rarity of contaminated water, it must be rare indeed that the two should coincide.

In the light of the foregoing considerations, if we were to assume that about the middle of December the dairymen of Tampa suddenly began watering the milk in a wholesale way, and using water that was contaminated with both typhoid bacilli and amoebae dysenteriae, and if they were to keep it up for a period of about three months, and then drop it off, we would have about the typhoid picture that we have; for in West Tampa the population is mostly Latin, and use milk hot, consequently West Tampa would be very slightly affected by it, East Tampa, about half American and half Latin would have a considerable increase of typhoid fever, chiefly among the Americans, since they take milk raw; while Hyde Park, purely American, would have a very great increase in typhoid, and possible amoebic dysentery. But such an assumption would, barring malicious intent, violate every law of possibility.

Again: If we were to assume that about the middle of December suddenly a large number of typhoid carriers were to be-

come engaged in milking, and were to assume that some amoeba carriers were capable of transmitting amoebae in the same way that typhoid carriers transmit typhoid, and were to assume that some amoeba carriers were likewise engaged in milking, we would have a similar picture, but such a set of assumptions is absurd on its face.

OYSTERS.

In the absence of case records we are forced to the expedient of depending upon the known epidemiology of typhoid and amoebic dysentery to determine the part that any given article of diet might play. This was our condition with reference to oysters. But even here we were not helpless. Twenty-five dealers were interviewed as to the source of their oysters, and it was found that they all came from Apalachicola, Carrabelle, Long Bar, Catfish Point and Catfish Creek. So far as is known, these sources of supply are above suspicion. But, and this is important, the oyster season begins about September, although the typhoid fever and amoebic dysentery did not begin till the latter part of December. With these facts before us, and the additional fact that oysters have never been accused, so far as we are aware, of being instrumental in the transmission of amoebic dysentery, we feel abundantly justified in eliminating oysters as totally inadequate to account for so widespread an infection.

VEGETABLES.

We now turned our attention to vegetables. It was found that nearly all of the vegetables used in Tampa are grown in the valley of a little stream (if it can be called a valley) partly within and partly without the city, on the eastern border, and known as Garytown. Mr. Ball, one of the leading grocerymen, estimates that 95 per cent of all the vegetables used in Tampa are grown in this locality. Engaged in the pursuit of gardening are Americans, Cubans and Italians. It was variously rumored that the Cubans were fertilizing with night soil. We made a close investigation of this and satisfied ourselves that this was not true. Or if at all, to such a limited extent as to be totally inadequate to explain the situation in hand.

We consulted the records of the Weather Bureau, and found that on the 16th and 17th of December there was a very heavy rain, 1.95 inches having fallen in 24 hours. This flooded all the lower portions of the valley. Mr. McFarland, who had considerable gardening interests, estimated that 75 per cent of the gardens were overflowed.

Now the watershed of this little stream is roughly estimated at four square miles. It is conservatively estimated that 1,500 people living on this watershed are using surface closets. We got record of 16 cases of typhoid fever and three cases of amoebic dysentery on this watershed during last year.

Looking back over the reports of the Weather Bureau, it was observed that on the 28th of November, and on the 18th and 19th of October, were heavy rainfalls. Now, if this infection is due to the vegetables having been flooded with the polluted drain water of the valley, did it suddenly spring up after the December rains, instead of the November, or the October or the September? Inquiry among the gardeners as to when the vegetables come into the market, answered that satisfactorily. Mr. Ball did not handle any green vegetables to speak of till the first of January. And with the exception of lettuce, there seems to have been practically no green vegetables in the market prior to that time. But lettuce gradually found its way into market earlier. Mr. Smith, of the Dairy Kitchen, told me that he had had lettuce on his table since September. Mr. Smith's, however, was grown in West Tampa. The Havana Restaurant told us that they had lettuce salad on Christmas eve. From which it would seem that lettuce was fairly in the market by the middle of December, when the valley flooded.

There is still another question to be answered. If flooded lettuce is responsible for the dissemination of the two diseases, why is it that Hyde Park has more than her share, while West Tampa escapes?

Mr. Ball is a groceryman who supplies a large part of the Hyde Park trade. He tells me that practically all the lettuce that he sells goes to Hyde Park patrons. That the poorer people usually buy staple groceries, while the better-to-do buy the more fanciful but less nutritious foods. A canvass of West Tampa was made to determine to what extent lettuce was consumed over there. The

first man interviewed was a vegetable vender. He had all other vegetables displayed on his wagon but no lettuce. He said that he bought about two dozen bunches every three or four days, and what he didn't sell gave to his cow. Said he usually had some to give to the cow. He supplied regularly fifty families. The Havana Restaurant had no lettuce. Said they had made salad on Christmas eve, and possibly six times since. Three different grocers were asked if they had lettuce, but none was to be had. The uniform reply was that there was no demand for it. A very large vegetable wagon was interviewed but had no lettuce. In fact, we didn't succeed in finding a head of lettuce in West Tampa, although we were told by one of the venders that he had some in his wagon, but none was in sight. From which we conclude that very little lettuce is consumed in West Tampa.

In East Tampa, on the other hand, the grocerymen interviewed sold some lettuce. Mickler, for example, stated that he had sold moderate quantities of lettuce in his trade, which is largely in the eastern part of the city. From these considerations the conviction forces itself upon us that most lettuce is consumed in Hyde Park, less in East Tampa and least in West Tampa.

The reasons for this are likely found in the different nationalities that go to make up the population. Hyde Park is composed exclusively of Americans, and of the more exclusive Americans. West Tampa is almost pure Latin, while Eastern Tampa is about half and half American and Latin. The Americans eat more salads than the Latins. And again when the Latins make a salad, they usually use olive oil, which is the most expensive part of the dish. Olive oil has been high this year, and there has been a cigar strike on beside, which has made money scarce and this may have had some influence upon the amount of lettuce consumed by the Latins.

When the evidence began to exclude other possible sources of infection, and at the same time to point more and more strongly toward pollution of vegetables (this was before it narrowed down to lettuce), we summoned the laboratory to the witness stand. Though we realized that conditions in March, and in December, just after heavy rain, were entirely different, still we took a chance on examining the water of the creek and the cress that was grow-

ing in it for evidence of sewage contamination. The following is extracted from Dr. Simon's report:

You will recall that there were four samples of water, and one sample of water-cress obtained from the creek running through the truck garden district of Garytown. From these five samples a series of plates were made, using litmus-lactose-agar for plating the specimens of water; one showed evidence of sewage contamination, as did also the specimen of cress, obtained from the creek. The sample of water showing the sewage contamination, was the one obtained from the small ditch emptying from the street into the large creek. This not only showed acid-producing bacillae (probably colon) but also one colony of a motile bacillus, that in many respects resembled the typhoid bacillus, showing some tendency to agglutination with typhoid blood.

Considering the fact that the creek was low at the time, and that so much time had elapsed since the flooding, we hardly expected to get even this much evidence. And while it is not conclusive, still it is strongly suggestive.

CONCLUSIONS.

1. That typhoid fever was unusually prevalent in Tampa.
2. That amoebic dysentery was likewise unusually prevalent.
3. That this unusual prevalence began in the latter days of December, and continued rising on through January, reached its maximum in February, and began to fall in March.
4. That Hyde Park was the chief seat of the infection, both of typhoid fever and amoebic dysentery.
5. That East Tampa shared the increase to some extent.
6. That West Tampa had very little typhoid, and so far as we know no amoebic dysentery at this time.
7. That in point of screening and sewerage Hyde Park ranks first, East Tampa second, and West Tampa third.
8. That water played no part in the infection.
9. That milk, oysters and flies are likewise epidemiologically excluded.
10. That the source of the infection was likely polluted lettuce, the evidence of which is as follows:
 - a. That most of the lettuce consumed in Tampa is grown in Garytown valley. (Mr. Ball.)
 - b. That lettuce gradually found its way into the market from the latter days of September, the market being well opened by the middle of December. (Mr. Smith.)
 - c. That on the 16-17 of December a rainfall of 1.95 inches occurred in 24 hours. (Weather Bureau.)
 - d. That at this time 75 per cent. of the vegetable gardens in the Garytown valley were flooded. (Mr. McFarland.)
 - e. That living on the watershed of this Garytown valley are approximately 1,500 people using surface closets.
 - f. That among these were sixteen cases of typhoid fever and three cases of amoebic dysentery last year. (See laboratory records.)
 - g. That the flooding of the gardens from a polluted watershed would in-

evitably pollute the vegetables, as shown by the fact that a sample of water taken from the creek in a dry season, March 10th, showed sewage pollution. (Dr. Simon.)

h. This is further substantiated by the fact that a sample of water taken from the creek even in a dry season (March 10) was sewage polluted. (Dr. Simon.)

i. That lettuce was the chief vegetable concerned because it was the only one to reach the market in any considerable quantity till several weeks had elapsed after the flood, and after the typhoid had been well established.

j. That the people of Hyde Park consume proportionately more lettuce than those of the rest of the city; and here both typhoid fever and amoebic dysentery were chiefly prevalent.

k. That the people of East Tampa consume lettuce to some extent, but not to the extent that Hyde Park people do, (Ball Mickler, and other grocers), and that here typhoid and amoebic dysentery prevailed to some extent but not so much as in Hyde Park.

l. That the people of West Tampa consume very little lettuce, and here the typhoid and amoebic prevalence showed no disturbance.

In conclusion, permit me to say that while I alone was detailed to make the investigation, yet Dr. Bartlett, Agent of the State Board of Health for Hillsboro County, rendered such wholehearted and valuable assistance from the time I arrived till I left and even afterwards, that simple justice demands that this be submitted as a joint report.

Mayor McKay, as chief executive of Tampa, rendered every assistance possible, in conducting the inquiry.

Dr. Simon kindly worked up the bacteriological data, and the record of cases diagnosed at the laboratory and rendered valuable assistance in various other ways.

The City Health Officer and the medical profession at large gave united co-operation.

President Bowyer, of the Board of Trade took a very lively interest in the situation, when the findings were informally rendered before that body, and the Mayor had expressed his desire to put in a sewerage system, the plans for which had already been drawn, and I had bespoken the support of the administration in this endeavor. Mr. Bowyer promised that the Board of Trade would use its influence to bring it to pass.

This seems to have met a hearty response from the people in general, for Mayor McKay, who was very outspoken in this policy, has since been re-elected to the mayoralty. It is therefore

safe to predict that it is only a matter of a few months when Tampa will have that strongest bulwark of protection against a similar recurrence, that modern science can devise, namely, a complete and magnificent sewer system.

REPORT OF DR. E. W. DIGGETT.

Tallahassee, Fla., Jan. 1, 1913.

DR. JOSEPH Y. PORTER,
State Health Officer, Jacksonville, Fla.

DEAR SIR: I have the honor herewith to hand you my annual report for the year ending December 31st, 1912.

The year's work has been confined almost exclusively to hookworm work, both laboratory and dispensary.

From July until the end of the year Dr. C. T. Young and myself have devoted the whole of our time to the establishment of field dispensaries for the treatment of hookworm. A full conjoint report of this work is appended.

When not in the field, my time has been spent in the dispensary in Tallahassee, sanctioned by the State Health Officer. Quite a number of cases of hookworm have been treated and advice given whenever called upon, on simple sanitary problems.

Visits to schools in the county have been made, and several hundred vaccinations against smallpox, done.

It is almost impossible to give in tabulated form, my details for the year, so will take them up separately.

January 31st. In company with Mr. Edward Eppes, County Superintendent of Schools, visited a number of schools in eastern part of county. Talks were given to the pupils on smallpox, vaccination, hookworm and public health matters in general. A number of vaccinations were done and hookworm specimen outfits distributed.

February 1st. At the request of Miles Johnson, Esq., visited his plantation. Found two cases of smallpox in the family of his negro foreman. It is interesting to note in this case the two patients were the only ones on the plantation that were not vaccinated, on a previous visit made by Dr. F. C. Moor and myself, the previous year.

February 2d. In company with E. Ryan, colored, who is em-

ployed by the county to visit the colored schools, to teach agricultural methods, visited several schools in the northeastern part of the county. Some fifty vaccinations were done and hookworm outfits distributed.

February 4th. Second visit to smallpox cases on the Miles Johnson plantation.

February 7th. Second visit made to schools previously visited in company with E. Ryan. Specimen outfits collected and more vaccinations done.

February 8th. Visited schools in company with Mr. Edward Eppes.

February 9th. Third visit to smallpox cases, Miles Johnson plantation.

February 11th. Fourth visit to smallpox cases, Miles Johnson plantation.

February 13th. Visit Rockhill school in company with E. Ryan.

February 16th. Fifth visit to smallpox cases, Miles Johnson plantation.

February 17th. Visited Crenshaw school and district, investigated report of smallpox, vaccinations done and talks given to school children.

February 20th. Second visit to Rockhill and St. Philips schools.

February 25th. Sixth visit to smallpox cases, Miles Johnson plantation.

February 26th. Seventh visit to Miles Johnson plantation; cases released. No further developments.

March 7th. At the request of Mr. Woodward, investigated a pond presumed to be breeding place of Anopheles. Special report sent to the office.

March 9th. By direction of the State Health Officer, investigated smallpox reported to office. No cases were found but reports of two were investigated, which undoubtedly were smallpox. The white and colored schools were visited and children vaccinated; also number of adults submitted to vaccination.

May 21st. By direction of the State Health Officer, visited

Havana and district on vaccinating tour. Thirty-six vaccinations were done.

May 23d. By direction of the State Health Officer visited Clarksville, Calhoun County, to investigate smallpox reported by Dr. Reeder. Two cases in convalescent stage found. Situation left in charge of Dr. Reeder.

June 4th. By direction of the State Health Officer, visited Quincy, in compliance with request made by Sheriff Gregory to investigate reported cases of smallpox in Gadsden County. No cases were found. Spent one week in Quincy, visiting surrounding country each day.

June 14th. Visited Dr. McEachern, County Health Officer of Jefferson County at Monticello; talked over smallpox situation in the county; no developments. Dr. McEachern was confined to bed at this time and unable to attend to his official duties.

June 19th. Through kindness of Dr. W. E. Palmer, visited with him, three cases of pellagra, all negroes, all cases within radius of three hundred yards. One case in extremis died the same night.

June 26th. Accompanied by Dr. Dawson, State Veterinarian, investigated reported suspicious case of glanders, north of town.

July 25th. Dispensaries for the free treatment of hookworm commenced, joined by Dr. C. T. Young.

September 9th. By direction of the State Health Officer visited Blountstown. Interviewed Dr. Elmore. Special report sent to the office.

LIST OF DETAILS—DR. C. T. YOUNG, ASSISTANT STATE HEALTH OFFICER.

Date.	Town.	County.	Disease.	Remarks.
Jan. 3-----	Lochloosa	Alachua	Sanitary nuisance	
Jan. 5-----	Clearwater	Pinellas	Smallpox	1 case
Jan. 20-----	Istachatta	Hernando	Smallpox	4 cases
Feb. 1-----	Jacksonville	Duval	Vaccinating	
Feb. 11-----	Winter Garden	Orange	Smallpox	4 cases
Feb. 15-----	Armstrong	St. Johns	Smallpox	5 cases
Feb. 17-----	Palatka	Putnam	Smallpox (Recovered.)	4 cases
Feb. 20-----	Johnsons	Putnam	Vaccinating 2 colored schools	
Feb. 21-----	Sanford	Orange	Sanitation (information).	
Feb. 21-----	Longwood	Orange	Smallpox	5 cases
Feb. 27-----	Palmetto	Manatee	Smallpox	1 case
March 1-----	Lakeland	Polk	-----	
March 2-----	Zephyrhills	Pasco	information, variola	
March 8-----	Brooksville	Hernando	Variola	20 cases
March 20-----	Hawthorn	Alachua	Sanitary nuisance	
March 31-----	Palmetto	Manatee	Variola	1 case
April 2-----	Bushnell	Sumter	Variola	4 cases
April 3-----	Dade City	Pasco	-----	
April 3-----	Pasco	Pasco	Variola, white	3 cases
April 8-----	Wildwood	Sumter	Variola, colored	1 case

April 11-----	Davenport	Polk	Variola, colored	5 cases
May 2-----	St. Petersburg	Pinellas	Sanitary nuisance	
May 7-----	DeLand	Putnam	Smallpox, colored	2 cases
May 10-----	Davenport	Polk	Adjusting bill	
May 11-----	Maitland	Orange	Sanitary nuisance	
May 13-----	Melbourne	Brevard	Smallpox	5 cases
May 21-----	Gainesboro	Orange	Smallpox	4 cases
June 1-----	New Smyrna	Volusia	Variola	4 cases
June 6-----	Lakeland	Polk	Variola	1 case
June 11-----	Clearwater	Pinellas	Variola	7 cases
June 12-----	Newberry	Alachua	Variola	2 cases
June 14-----	Fellsmere	St. Lucie	Variola	1 case
June 18-----	Palatka	Putnam	Variola	10 cases
June 19-----	Francis	Putnam	Variola	
June 20-----	Crescent City	Putnam	Variola	1 case
June 21-----	Florahome	Putnam	Variola	1 case
June 22-----	Hastings	St. Johns	Variola	5 cases
June 29-----	Fellsmere	St. Lucie	Variola	2 cases
July 3-----	Winter Haven	Polk	Sanitary nuisance	
July 24-----	Tallahassee	Leon.	Launching hookworm campaign with Dr. E. W. Diggitt, which is covered in special joint report.	
Dec. 23-----	Plant City	Hillsboro	Smallpox, colored	1 case

RECAPITULATION BY COUNTIES.

Smallpox.	
Alachua County	2 Cases
Brevard County	5 Cases
Hernando County	24 Cases
Hillsboro County	1 Case
Manatee County	2 Cases
Orange County	8 Cases
Pasco County	3 Cases
Pinellas County	8 Cases
Polk County	6 Cases
Putnam County	18 Cases
St. Johns County	10 Cases
St. Lucie County	3 Cases
Sumter County	5 Cases
Volusia County	4 Cases
Total	99 Cases
Details:	
Adjusting an account	1
Information	2
Sanitary nuisance	5
Smallpox	28
Vaccinating	2

CONJOINED REPORT OF ASSISTANT HEALTH OFFICERS.

DR. C. T. YOUNG,

DR. E. W. DIGGETT.

Report of the establishment of dispensaries, for the free treatment of hookworm disease; located in the counties of Leon, Wakulla, Franklin, Jackson, Washington, Holmes, Walton, Santa Rosa, and Escambia, by Assistant State Health Officers, Young and Diggett.

On the 25th of July, at the request of the State Health Officer, we began the publicity campaign preliminary to the inauguration of these institutions. The first chain of dispensaries was located in five different places in the counties of Leon, Wakulla and Franklin; the second chain in the counties of Washington, Jackson and Holmes; the third in Walton, Santa Rosa and Escambia; which were selected because of their location, accessibility and population.

The following poster was then printed, and mailed to all doctors, postmasters, newspaper editors and public spirited citizens living in this territory, with a letter requesting that they co-operate with us in making the crusade a successful one.

NOTICE.

The State Board of Health of Florida will open a Dispensary or Field Hospital for the treatment of hookworm at the following places and dates named below:

This dispensary will be centrally and conveniently located in these different places, and will be open from 8 a. m. to 6 p. m. Two physicians from the State Board of Health will be in charge. There will be on exhibition charts and specimens of the hookworm, showing all stages of its development. Numerous pamphlets on hygiene and sanitation will be distributed. Microscopes will be on exhibition, and opportunity will be given everyone to view an extremely interesting collection of specimens, covering quite a series of contagious diseases.

Numerous talks and demonstrations will be made, in plain and simple language, so that everyone will be able to understand. We want every man, woman and child in this section to visit the most convenient dispensary on the

dates mentioned above, as much of the bad feeling or the different complaints they suffer with, are caused by the hookworm.

DIAGNOSIS AND TREATMENT ARE ABSOLUTELY FREE.
THE STATE IS PAYING FOR IT OUT OF YOUR TAXES.

So many people have been found infected, and the results of treatment are so certain and so wonderful, that the State Board of Health feel that it is worth dollars and cents to them, to restore so many of their people to health, happiness and strength. It may be worth many dollars or maybe life itself to you or your children. You will have only this one chance for free treatment.

Respectfully,

JOSEPH Y. PORTER,
State Health Officer.

Additional matter bearing upon the work was furnished the editors, who very generously ran it for several issues in their publications. Merchants and druggists gave us a very considerable assistance in the display and distribution of our hand bills. County superintendents of schools and teachers co-operated very nicely in their insistence that the pupils visit the dispensary. In the majority of instances the schools were visited and inspected, short talks were made to the different grades on the hookworm and all were invited to visit us.

In order to become better acquainted with local conditions, meet the people, and secure a good room for our work, a visit was made to these different places before the opening day. At the same time we were able to give more attention to the display and distribution of our announcements.

In circulating the information throughout the adjacent territory, as well as for their assistance in treating the cases, we feel under a considerable obligation to the County Health Officers living in these sections.

In those places where we were located in the Court House, we desire to express our appreciation of the kindness and courtesy shown us by the County Officials.

For convenience, precision and general adaptability to conditions encountered, it was thought best to dispense the treatment in small compact packages. According to the dose contained these were numbered, One, Two and Three. To hold the medicine an enameled paste-board box was employed.

Upon the lid was pasted a label bearing this inscription, printed in bold black letters.

State Board of Health of Florida.
Free Hookworm Treatment.

Name _____

No. _____

See directions inside.

State Board of Health of Florida.

Directions for taking the hookworm treatment.

READ OVER UNTIL YOU UNDERSTAND, THEN FOLLOW TO THE LETTER.

On the morning of the day on which the treatment is to be taken eat a light breakfast.

For dinner take only a bowl of soup, glass of milk or tea.

At 1:30 p. m. take one of the doses of salts dissolved in a tumbler of tepid water. This should be sufficient to thoroughly evacuate the bowels and permit the medicine to come in contact with the worms.

Do not eat any supper, nor take any fluids, except an amount of water necessary to facilitate the swallowing of the medicine. Don't take anything to eat or drink between meals.

At 6 p. m. take two of the white disks (cachets). First dip in water to soften it; then put it on the back of the tongue and swallow without chewing, as you would an oyster.

At 7 p. m. take two more disks.

And at 8 p. m. the last two disks or cachets.

Patient should then retire for night; resting preferably on the right side for the first hour or so.

The next morning as soon as awake—say 5 or 6 a. m.—take the remaining dose of salts. In the stools following, the worms are passed. They can be observed by allowing the bowels to pass into the chamber, jar or vessel; then add water, stir and permit to settle; then the top water or fluid is poured off. After this process has been repeated three or four times the small pink thready worms can be seen on the bottom of the vessel.

All alcohol, milk, butter, soups, fats, oils and greasy foods are to be withheld during the treatment; it is dangerous: In short, allow nothing to pass the lips other than that mentioned in the directions.

In addition to above the contents of each box consisted of six cachets and two doses of salts; these last were wrapped separately in oiled paper.

INGREDIENTS OF CACHETS

Thymol.	Sugar of Milk.	Powdered Starch.
Cachet 1 10 grains	10 grains	
Cachet 2 7½ grains	7½ grains	2 grains
Cachet 3 5 grains	5 grains	2 grains
Each dose of salts in No. 1 contained 1 ounce.		
Each dose of salts in No. 2 contained 6 drams.		
Each dose of salts in No. 3 contained 4 drams.		

The dispensaries were located in school houses, court houses, public halls, Woodmen's halls, Masonic halls, drug and dry goods stores, in fact, wherever it was found most convenient for the public. They were held in these different places, once each week for three successive weeks.

As soon as sufficient people had assembled, it was our custom to give a lecture on the hookworm disease, going over the subject in a brief manner. Specimens of the hookworms in bottles were passed among the audience, so that they could become familiar with the appearance of the parasite. Eggs of the hookworm, the larvae in both its free and encysted forms were demonstrated to them with the microscope. The anatomy of the worm, segmentation of the egg, development, both in and outside of the body, modes of infection, particularly the ground itch, symptoms and effects, soil pollution and correct methods of sewage disposal, were thoroughly explained to them by the use of the large pictorial chart furnished by the U. S. Public Health Service.

A special effort was made to convince the audience of the essential need of a sanitary disposal of sewage before any material progress could ever be made in an effort to eradicate the hookworm. The specifications for construction of sanitary privies and the necessity for the correct maintenance of the same were repeatedly emphasized. A special effort was made at all times to convince the people that no permanent good could come from the treatment of the children if they were allowed to continue to run barefooted and become reinfected.

After a further statement of the scope of the dispensary, the nature of the treatment, the expense of which was being borne by the taxpayers, making it and our service absolutely free to all, we proceeded to the examination of the cases.

A physical inspection and clinical examination was made of each person applying to us. Where the patient gave a history of ground itch within twelve years, we endeavored to find some further evidence of the disease in the clinical manifestations and physical appearance of the subject. Succeeding in this, we recommended that the treatment be taken; discussing freely, on all occasions the precautions necessary for its successful administration.

In the mild or border line cases, where we were in doubt as

to existence of the infection we frankly said so; and suggested that a trial treatment be taken for diagnostic purposes, that is, examination of the stools for the worms after the medicine had been taken, or that they have recourse to the laboratory, where a microscopic search could be made of the stool for the ova of the parasite.

The volume of work on these different days being so great, it was impossible for us to do any educational work, examine and treat the cases, and carry on in addition the microscopical tests. It became necessary, therefore, that they be referred either to their family physician or to the State laboratories direct, for this further investigation.

All suspected, together with positive cases coming to us for the first time, on our opening or the following dispensary day, were given one treatment and requested to examine their stools for the worms and report to us upon their next visit. In this way, we were able in a measure to check our results without the use of the microscope. Those coming for the first time on the last day of the dispensary, were given the full course, of three or four treatments, depending upon the severity of the case.

To all who appeared interested we gave pamphlets discussing in a more exhaustive manner the hookworm disease, together with others upon malaria, typhoid, sewage disposal, the house fly and hog cholera. This last named publication seemed to be by far the most popular among our friends of the rural districts.

Quite often we spoke to blushing faces and bowed heads when exhibiting pictures of insanitary privies and discussing modern methods of sewage disposal. At such times the painful silence which seemed to pervade the atmosphere was most disconcerting; yet the need of these talks was the most urgent of any feature of this work, as was evidenced by an inspection of the premises of many places throughout these sections.

During the closing days of the last chain of dispensaries a typical citizen from the country brought in his boys who were walking illustrations of the hookworm disease. After the treatment had been given these cases, the subsequent prevention of the infection was gone into; the gentleman remarked during the conversation which followed, that he had made up his mind, in spite

of the fact that there had never been a privy on his place, to build a good one this winter "sometime." We leave it to the imagination of the reader as to how thoroughly these boys must have polluted the soil about their neighborhood, and how impossible it would be for the barefooted children of other families to avoid the perennial attacks of ground itch.

In conclusion we wish to say, from our observation of the dispensary system, as carried out in the different places visited, that it is the most successful of any of the endeavors made by the State Board of Health, up to the present, in their efforts to eradicate hookworm disease in this state. It has been most kindly received by those living in the country districts, many of them coming from considerable distances to receive its benefits.

The publicity methods adopted were most successful in towns and villages; but quite often, those living in the more remote sections were unaware of our efforts, until after we had taken up the crusade in a different field.

The visiting and inspecting of schools and eliciting the co-operation of the teachers, has probably been more helpful to the cause than any other method adopted.

Another potent factor in the success of the work which has been accomplished, has been the very generous stand taken by the local physicians in referring the cases coming under their observation to us for treatment; they have also been most active in spreading information concerning the dispensaries throughout the sections visited by them in their professional ministrations.

At the close of the dispensaries, the county agents together with several other local physicians requested the Board to furnish them with a supply of the treatment, which they kindly offered to distribute among those previously mentioned as not familiar with the efforts of the Board until too late.

In order to give a fair idea of the work accomplished and at the same time to avoid a repetition of more or less tedious matter, we have condensed the results accomplished into the following tabulated reports.

Respectfully submitted,
C. T. YOUNG,
E. W. DIGGETT,
Assistant State Health Officers.

RESULTS OBTAINED IN DISPENSARIES HELD DURING AUGUST AND SEPTEMBER, 1912
DR. C. T. YOUNG, DR. E. W. DIGGETT, in charge

Held at Woodville, four days, August 5th, 12th, 26th and September 2nd; number of people attending 300; number talks 10; demonstrations 10.

Held at St. Marks, three days, August 6th, 13th, 20th; number of people attending 150; number talks 10; demonstrations 25.

Held at Carrabelle, three days, August 8th, 15th, 22nd; number of people attending, 400; number talks, 12; demonstrations, 60.

Held at Sopchoppy, five days, August 9th, 16th, 23rd, 30th and September 6th; number of people attending, 700; number talks, 20; demonstrations, 100.

Held at Crawfordville, four days, August 17th, 24th, 31st, and September 7th; number of people attending, 550; number talks, 15; demonstrations, 75.

Total number of days, 19; total number of people attending, 2,100; total number of talks, 67; total number of demonstrations, 290.

Pamphlets distributed 250, 200, 250, 500 and 500. Total, 1,700.

Total treated.	One	Two.	Three.	Four.	Five.	Six.	Total.
Woodville -----	160	70	29	52	9	—	320
St. Marks -----	57	35	3	17	—	—	92
Carrabelle -----	241	161	20	60	—	—	381
Sopchoppy -----	439	91	60	183	52	—	968
Crawfordville ----	432	168	40	183	18	1	874
Total number of cases treated -----							1,329
Total number of cases treated once -----							525
Total number of cases treated twice -----							152
Total number of cases treated three times -----							495
Total number of cases treated four times -----							79
Total number of cases treated five times -----							1
Total number of cases treated six times -----							1
Total number of treatments given out -----							2,641
Total number of cases treated three times and over -----							576
Total number of white people treated during campaign -----							1,251
Total number of colored people treated during campaign -----							78

EXPENSE OF HOOKWORM CAMPAIGN, DURING THE MONTHS OF
AUGUST AND SEPTEMBER, 1912

Traveling and office expenses in opening campaign -----	\$ 63.45
Traveling, office and dispensary expenses in August -----	265.60
Livery rig furnished the two Assistants -----	23.50
Advertisement in Carrabelle Topics -----	12.00
Bill of Tallahassee Drug Co., thymol and other drugs -----	321.41
Bill for miscellaneous drugs, Hardee & Smith -----	7.25
Printing dispensary records, etc. -----	34.50
Salary for two Assistants doing work for six weeks -----	500.00
Thymol cachets from Stearns Co. (received late, only part used) -----	5.00
Travel, office, dispensary expenses, etc., of Assistant in September -----	60.50
Total -----	\$1,293.21
Total number of cases treated -----	1,329
Cost per patient -----	97c.

RECAPITULATION OF RESULTS OBTAINED IN DISPENSARIES DURING THE MONTH OF
NOVEMBER, 1912

Held at Marianna, four days, November 9th, 16th, 23rd and 30th; number of people attending, 68; number talks, 4; demonstrations, 11.

Held at Sneads, four days, November 4th, 11th, 18th, and 25th; number of people attending, 225; number talks, 8; demonstrations, 24.

Held at Noma, one day, November 22nd; number of people attending, 79; number talks, 3; demonstrations, 10.

Held at Chipley, four days, November 5th, 12th, 19th, and 26th; number of people attending, 415; number talks, 7; demonstrations, 11.

Held at Cottondale, two days, November 18th, 25th; number of people attending, 50; number talks, 3; demonstrations, 3.

Held at Westville, four days, November 6th, 13th, 20th and 27th; number people attending, 209; number talks, 6; demonstrations, 22.

Held at Vernon, two days, November 20th, and 27th; number of people attending, 110; number talks, 3; demonstrations, 11.

Held at Bonifay, four days, November 7th, 14th, 21st and 28th; number of people attending, 500; number talks, 4; demonstrations, 16.

Total number of days, 25; total number of people attending, 1,656; total number of talks, 38; total number of demonstrations, 108.

Pamphlets distributed about 2,000.

	Total treated.	One.	Two.	Three.	Four.	Five.	Total.
Marianna	90	81	9	26			206
Sneads	274	259	15	74	2		624
Noma	126	125	1	42			294
Chipley	524	518	6	122	14	12	1196
Cottondale	74	54		20			148
Westville	204	182	22	40	1		449
Vernon	247	168		79	2		496
Bonifay	636	606	33	180	4	2	1461
Totals	2175	1993	86	583	23	14	4874

Total number of treatments given out.....4,874
Total number of cases treated three times and over..... 620

EXPENSE OF HOOKWORM CAMPAIGN DURING THE MONTH OF NOVEMBER, 1912

Travel, office and dispensary expenses of two Assistants.....	\$215.65
Salary of two Assistants.....	233.32
Printing	34.50
Express on literature	9.63
Thymol	13.50
Bill for treatments from Tallahassee Drug Co.....	327.45

Total expense.....\$834.05

Total number of treatments given out..... 4,874
Cost per treatment 17c

RECAPITULATION OF RESULTS OBTAINED IN DISPENSARIES HELD DURING THE
MONTH OF DECEMBER, 1912

Held at DeFuniak, three days, December 2nd, 9th, and 16th; number of people attending, 270; number of talks, 3; demonstrations, 7.

Held at Milligan, three days, December 3rd, 10th, and 17th; number of people attending, 225; number of talks, 4; demonstrations, 11.

Held at Milton, three days, December 4th, 11th, and 18th; number of people attending, 225; number of talks, 7; demonstrations, 13.

Held at Molino, three days, December 6th, 13th, and 20th; number of people attending, 150; number of talks, 4; demonstrations, 13.

Held at McDavid, three days, December 6th, 13th, and 20th; number of people attending, 180; number of talks, 4; demonstrations, 7.

Total number of days, 15; total number of people attending, 1,050; total number of talks, 22; total number of demonstrations, 51.

Pamphlets distributed, 1,000.

	Total treated.	One.	Two.	Three.	Four.	Five.	Total.
DeFuniak	418	292	9	109	8		836
Milligan	291	203	11	76	1		582
Milton	222	173	4	40	5		444
Molino	168	123	2	43			336
McDavid	197	141	4	46	6		394
Totals	1296	932	30	314	20		2592

Total number of treatments given out.....2,592
Total number of cases treated three times and over..... 334

EXPENSE OF HOOKWORM CAMPAIGN DURING THE MONTH OF DECEMBER, 1912

Travel, office and dispensary expenses of two Assistants.....	\$210.45
Salary of two Assistants	233.32
Printing	16.80
Express	7.37
Tallahassee Drug Co.	81.75
Bill from Stearns for thymol, remainder which is not shown on previous statements	131.50

Total expense\$681.19

Total number of treatments given out 2,592
Cost per treatment 26c

REPORT OF DR. RAYMOND C. TURCK.

SURGEON IN CHARGE OF THE WORK UNDER THE "CRIPPLED
CHILDREN'S" BILL.

Jacksonville, Fla., Jan. 1, 1913.

DR. JOSEPH Y. PORTER,
State Health Officer, Jacksonville, Fla.

DEAR DOCTOR:—In accordance with your request I beg to submit the following report of the work done in orthopedic surgery under the auspices of the State Board of Health for the year 1912.

The legislature of 1911 passed an enactment called "The Crippled Children's Bill" which was approved by Governor Gilchrist, May 30th, 1911. The State Health Officer did not immediately take action in enforcing this measure because of the ambiguity of the wording of the bill and because there was at the time no place in the state where provision could be made for the caring for these unfortunate children, which this bill specifically states must be indigent. During the early part of the year 1912 the State Health Officer by authority of the State Board of Health arranged that white children should be cared for at St. Luke's Hospital and that the colored children should be cared for at Brewster Hospital, both located in the City of Jacksonville, Fla. The bill is as follows:

Chapter 6133. (No. 14)

"An Act to Authorize and Direct the State Board of Health to Establish a Hospital for the Treatment of Indigent Crippled Children, and Providing an Appropriation Therefor.

"Be it Enacted by the Legislature of the State of Florida:

"Section 1. That the State Board of Health be, and it is hereby authorized and directed to establish at some suitable and convenient location in this state a hospital for the treatment of indigent crippled children of this state. In such hospital indigent crippled children of this state shall be received and treated free of charge.

"Section 2. That for the purposes of Section 1 hereof the State Board of Health is hereby authorized to purchase a plot of ground and erect thereon a building suitable for such purpose, or to purchase a plot of ground with building already erected, in its discretion. For such purchase, and for the purchase of suitable instruments, apparatus, furniture, fixtures and other articles necessary for such an institution, the sum of twenty thousand dollars, or so much thereof as may be found necessary, is hereby appropriated, payable from the State Board of Health Fund.

"Section 3. That for the purpose of maintaining the hospital herein provided for, and of employing such physicians and attendants as are requisite for the conduct of the hospital, the sum of ten thousand dollars, or so much thereof as may be necessary, is hereby appropriated annually for the two years beginning July 1st, 1911, payable from the State Board of Health Fund.

"Section 4. This Act shall take effect July 1st, 1911. Approved May 30, 1911."

The treatment and care of indigent crippled children in this state has up to the present time, been sadly neglected. In almost every instance the treatment of an orthopedic case covers a long period of time and requires much patience and perseverance on the part of both surgeon and parents. In many cases the treatment is necessarily carried through a period of weeks, months, or even years. There being no institution equipped or endowed to care for the indigent, the poorer classes have been unable to bear the expense of a long continued stay in hospital or long continued medical or surgical services and from necessity as well as from a disinclination to part with their children for a long period of time, have allowed their children to go without treatment in many instances until the deformities are so severe that not only is a radical operative procedure required, but the period of time necessary for treatment is necessarily lengthened. The cases thus far received have practically all been of the neglected type and hence, because of the short period of time in which this work has been carried on we are unable to show more than a few complete cures. A number of patients received in 1912 are still under treatment.

In perhaps no other surgical field is an early diagnosis and early treatment more definitely indicated. Diseases of bones and

deformities, if taken in the early stage, are often amenable to treatment without severe operation but if neglected always increase in extent rather than improve and often reach a point where complete restoration of function and appearance is impossible. Some type of operation and usually a long after treatment and a continued oversight and correction is essential in practically all neglected cases.

That undeserving cases shall not be admitted to the Crippled Children's Fund, patients are only admitted to hospital through the State Health Officer upon application, which must be signed by a registered physician, by a civil officer or by an officer of a charitable organization. As a rule, after an application has been received and approved by the State Health Officer, the child is brought to Jacksonville and examined by the surgeon in charge of the work and a report is then made to the State Health Officer as to whether or not the case offers an opportunity for improvement or cure. The patient is then sent to Hospital or returned to its home at the discretion of the State Health Officer.

The following application blank is used:

APPLICATION FOR RELIEF OF CRIPPLED CHILDREN
Under Authority of the Laws of the
State of Florida, Chapter 6133,
Laws of 1911.

Name _____ Address _____
Sex _____ Color _____ Age _____
Name and address of parents or nearest relative:
Name _____ Address _____ Relationship _____
Father: Living _____ Age _____ Condition of health _____
Dead _____ Age at death _____ Cause of death _____
Mother: Living _____ Age _____ Condition of health _____
Dead _____ Age at death _____ Cause of death _____
Applicant's present condition _____
When did disease or disability first appear? _____
If it began with an acute illness state variety _____
Short history of progress of disease or disability _____
What treatment, medical or surgical, has child had? _____
Name and address of attending physician _____
Are parents or relatives able to pay all or any part of hospital charges or
to provide necessary apparatus? If so, how much? _____
Name and address of party bringing child to Jacksonville _____
If no person is available to accompany child, is the child in condition to be
sent to Jacksonville in care of train conductor? _____

Should an ambulance be sent to meet child at railway station? _____

I hereby certify that the above named child is eligible for assistance from
the State of Florida, through the State Board of Health.

Date. _____ Signed _____

Address _____

If not signed by a physician, please state official title.

Mail this blank to Dr. Joseph Y. Porter, State Health Officer, Jacksonville,
Fla.

At the present time there are available for this work in St. Luke's Hospital twelve beds. Six new children's beds have just been purchased and a room has been set aside particularly for the surgical diseases of children.

In Brewster Hospital there are accommodations for ten children in the children's wards.

I would recommend that steps be taken to secure a special ward in the new St. Luke's Hospital now in the course of construction, either in a separate building to be erected by the State under authority of the legislative act or as a state ward in one of the new buildings.

But little work was done during the first six months of 1912, although a few cases were admitted. It was not until the latter part of the year that it began to be known that provision had been made to care for indigent children and hence the time is too short to show more than the beginning of the work and its results.

Thur far thirteen children have been admitted to the benefits of the Crippled Children's Fund. Twelve have been admitted to St. Luke's Hospital and one is at present under treatment in Brewster Hospital.

Short histories of these cases, together with such photographs and X-Rays as have been taken are appended hereto.

Case 1. Albert L. A white male child age nine years, admitted to St. Luke's Hospital April 10th, 1912, with spastic paralysis of both lower limbs and both arms, together with talipes equinus on both sides and partial knee flexion from muscular contraction. There were partial contracture deformities in both arms.

First operation under ether St. Luke's Hospital, April 17, 1912. Tenorrhaphies of both tendo achilles and tenotomies of all the inner ham-string tendons of both legs were done. Put in plaster casts with knees hyperextended and both feet in slight calcaneo valgus position. Recovery from these procedures was

prompt, wounds healed nicely. Casts were changed in June, 1912, and an attempt was made to teach the boy how to walk. This was found to be impossible through his inability to use crutches because of the stiffness in his arms and his inability to move his lower limbs at the hip joints because of adductor spasm.

Second operation under ether at St. Luke's Hospital July 16, 1912, thoroughly stretched and hyperextended the knees and did sub-cutaneous tenotomies of the adductor tendons on both sides. Sent to bed without plaster cast, the feet being fastened to the sides of the crib with limbs in abduction. After recovery from this operation persistent efforts were made to teach the boy to walk, together with the employment of massage, muscle stretching, joint manipulation, active and passive exercises and Swedish movements.

While the limbs have remained fairly straight the improvement in muscular strength and function, as in the majority of cases of severe spastic paralysis, has been but little. The case was returned to his home December 17th, 1912, with instructions to continue the massage and exercises.

Case 2. Inman A. White male child two years of age, admitted to St. Luke's Hospital upon application of Dr. W. E. Middleton of Worthington, Fla., June, 1912. Double congenital talipes varus, neglected type. Child was walking entirely on large brusae on the external malleoli.

Operation under ether St. Luke's Hospital June 21st, 1912. Manipulative correction being impossible owing to the distortion of the bones of the feet, it was necessary to cut the tendo achilles, plantar fascia, the tendon of the tibialis posticus and to do cuneiform osteotomy of the cuboid and astragalus on both feet. The bursae were also removed and the feet put in plaster. We were obliged to split casts almost immediately because of severe swelling and the appearance of blebs and other evidences of trophic nerve disturbances. Casts eventually replaced with feet in about normal position.

August 3rd, 1912, under ether anesthesia again thoroughly stretched both feet and put in casts. From August to the end of the year the feet were stretched and casts changed, gradually increasing the over correction at intervals of about ten days.

Case 3. Willie B. White boy, eight years of age, Jacksonville,

Fla., was referred to the Cummer Fund for Ruptured and Crippled Children by Dr. M. B. Herlong of Jacksonville, Fla., for treatment for talipes varus of the extreme and neglected type. There was a large painful bursae at the base of the fifth metatarsal bone from walking on the side of the foot.

First operation March 12, 1912, St. Luke's Hospital under anesthesia. Removed bursa entirely, cut plantar fascia and tendo achilles and straightened foot. Put up in plaster cast. Casts were changed at intervals until July, 1912, when the case was transferred to the State Fund for Crippled Children and admitted again to St. Luke's Hospital under the auspices of the State Board of Health.

Second operation July 11, 1912, St. Luke's Hospital, under ether anesthesia. Soft tissues were fully stretched and cuneiform osteotomy of the cuboid and astragalus was done. Put up in over correction. Casts were changed at intervals until October 1912, when the foot was placed in an adjustable club foot shoe and brace, and patient discharged. Unfortunately since leaving the hospital we have been unable to get track of this patient and hence have not the picture of the final result, though information has been indirectly received that the boy is walking in an ordinary shoe with a perfectly straight foot.

Case 4. Eunice K. White female child, six years of age, of Raiford, Fla., recommended by Dr. J. E. Maines of Lake Butler, Fla., with a diagnosis of osteomyelitis of the upper portion of the right femur, possibly involving the hip joint. There was almost complete fixation of the hip and partial fixation of the knee, together with evidences of periostitis and necrosis in the region of the great trochanter.

Operation August 10th, 1912, at St. Luke's Hospital under ether anesthesia. An external longitudinal incision was made downward from the great trochanter. Marked periostitis and necrosis of the bone involving the inner aspect of the great trochanter and the adjacent femoral shaft was found. The necrotic bone was removed and followed well into the head of the femur and there was in addition a beginning necrosis of the acetabulum. The wound was packed and limb put up in an abduction cast. Immediate recovery satisfactory. Wounds were dressed and packing

replaced on the fifth day. On the sixth day after operation there was an acute dilatation of the stomach. We were obliged to cut the abdominal portion of the plaster cast. The dilatation cleared up under change of position and stomach washing. The wound was dressed daily through a window in the cast and gradually healed. An x-Ray shows an almost complete regeneration of bone three months after operation. Child was sent home in a light cast with wound healed and with practically full motion in the hip joint.

Case 5. Pauline C. White female child, six years of age, of Cypress, Fla., referred to the State Board of Health by Dr. J. E. McLeod of Cypress, Fla. Admitted to St. Luke's Hospital August 12th, 1912, with a history of having had an infantile paralysis at two years of age. Examination upon admittance revealed complete paralysis of the muscles controlling the right shoulder joint, partial flexion of the right elbow from contracture of the biceps, and but partial use of the right hand. Left lower extremity presented a complete paralysis of the muscles controlling the foot except a slight action of the calf muscles. There was practically complete paralysis of the quadriceps femoris and of the gluteal group. There was a flexion contracture of both hip and knee. Right lower extremity presented a typical flail foot in slight talipes calcaneo-valgus with but little action of the extensors of the foot. Left knee fairly straight. In addition there was a beginning lateral curvature of the spine.

Operation August 10th, 1912, at St. Luke's Hospital under ether anesthesia. All contracted joints were stretched and straightened. It was necessary to divide the right rectus at the anterior superior spine and to cut the fascia lata and the tensor vaginae femoris of the left limb. The left limb was put up in a long hip spica cast until the first of October, 1912, and when the cast was removed, massage, muscle stretching, active and passive exercises were instituted. The patient was fitted with paralysis braces and sent home in December, 1912, with feet and legs straight but with no special improvement in muscular function.

Case 6. Ellsworth S. White boy six years of age, referred to the State Board of Health by the City Mission of Jacksonville, Fla., with supernumerary toes on each foot and small spurs on each hand.

Operation July 7, 1912, at St. Luke's Hospital, under ether anesthesia. Spurs were removed from the hands and both sixth toes were amputated. There was a lateral joint between the supernumerary and the proper fifth toes. Healing took place promptly and the patient was discharged cured August 19, 1912.

Case 7. Mildred G. White girl, eleven years of age, referred to the State Board of Health in August, 1912, by Dr. E. B. Hatch, Jacksonville, Fla. with an ununited fracture of the right arm immediately above and involving the elbow joint. There was a marked backward displacement of the lower fragment and there was no motion in the elbow. The elbow was fixed at an angle of about 45 degrees. This patient also had an old tuberculosis of the left knee joint which had begun at nine months of age. The knee presented a typical enlargement, ankylosis, etc., and in addition there was a moderate degree of flexion and apparently some acute exacerbation of the process, rendering it impossible for the child to walk without crutches.

Operation August 6, 1912, St. Luke's Hospital, under ether anesthesia. The knee was partially straightened and placed in plaster cast. The ununited fracture above the elbow was exposed by a posterior longitudinal incision, the fragments were cleaned and freshened and were joined by two loops of silver wire. The elbow was put up in an anterior plaster splint in right angled flexion. The splint was removed at the end of the fifth week and massage and passive motion commenced. In October, 1912, there was perfectly sound union and the child was discharged with 85 degrees of motion in the elbow joint. The knee was perfectly free from pain, child walking without crutches, in a light cast.

Case 8. Charles B. White boy, ten years of age. Referred to the State Board of Health in October, 1912, by Dr. James Pasco of Jacksonville, Fla., with a history of having sustained a compound fracture of the middle third of the left femur on June 8th, 1912. This was put in a temporary splint, primary dressing not stated. Operation was done by a surgeon in Alabama, June 9, 1912. The surgeon stated that there was a good deal of injury to the muscles from over-riding of fragments with interposition of muscle tissue between the bone ends. A four screw Lane plate was inserted at this time, the wound closed with gauze drain and a hip spica plaster bandage applied. Four days later the wound was

found to be infected and cultures showed staphylococcus. An X-Ray taken at this time showed the fragments in good position and plate apparently holding. Two weeks later the surgeon removed the plate, drew the bone ends together with kangaroo tendon, infection continuing with bacillus pyocyanus in addition to the staphylococci. An X-Ray at this time showed that the bones had again overlapped with increasing infection and a suppurating sinus leading down to the old fracture. At this time he came to Dr. Pasco and was then referred to the State Fund for Crippled Children and sent to St. Luke's Hospital. An X-Ray showed ununited fracture of the left femur with non-union, overlapping of fragments, areas of necrosis, and loose pieces of necrotic bone.

Operation October 29th, 1912, St. Luke's Hospital, under ether anesthesia. Dissected out the old sinus, thoroughly exposed bone, curetted and freshened the bone ends, removed several pieces of dead bone, one piece an inch by an inch and a half in length. Bone ends were approximated and held with a Parkhill clamp. The wound was left open, packed with gauze, and the limb put in plaster hip spica bandage.

The infection gradually subsided under daily dressings and the wound filled by granulation. By December 20th, 1912, the wound had entirely filled in. An X-Ray showed that the upper screws of the Parkhill clamp had loosened and had pulled out. There was therefore a slight inward bowing of the femur though callus formation had begun. The Parkhill clamp, however, had done its work in holding the bone ends together until callus formation had begun, infection had subsided and wound had healed. The clamp was removed, the slight inward bowing of the femur corrected and the patient placed in an abduction plaster cast.

Case 9. Barney A. White boy, age sixteen months, of Dukes, Fla., referred to the State Board of Health by Dr. W. E. Middleton, of Worthington, Fla., with congenital talipes varus of the right foot. Child had never walked.

Operation November 7, 1912, St. Luke's Hospital, under ether anesthesia. Foot was thoroughly stretched and loosened in all directions and put up in a half plaster cast in moderate valgus position. Marked swelling and edema followed from probable venous thrombosis. No operation was done. Hot dressings cleared swell-

ing and areas of skin necrosis. Foot intolerant to plaster cast. Patient still in hospital for operation later.

Case 10. Vernon R. White boy, nine years of age of Marianna, Fla., referred to the State Board of Health directly by parents. At three years of age had an injury of the left calf following which there was a gradual contraction of the calf muscles until complete talipes equinus resulted.

Operation November 14, 1912, St. Luke's Hospital, under ether anesthesia. A tenotomy of the tendo achilles was done, the foot over corrected and put in plaster. Recovery entirely uneventful. Casts changed at intervals.

December 21st, 1912, cast removed and ordinary shoes put on. Child walking, flexion and extension of the foot practically complete.

Case 11. Ernest D. White male child, seven years of age, Gainesville, Fla. Referred to the State Board of Health by Mrs. E. L. Watson, of Gainesville, Fla. Admitted to St. Luke's Hospital December, 1912. Condition was determined to be that of spastic paralysis of the lower limbs, the child walking with the typical shambling spastic gait. There was no involvement of upper extremities and no apparent mental disturbances. The boy could walk and run, but tired easily. There was a spastic condition of a mild degree affecting all groups of muscles of both lower limbs.

No operation was necessary and there was no indication for the use of braces. The child was returned to its home and the parents advised that persistent exercise and attention to the general health, with muscle stretching to prevent deformity, if such should begin, would probably result in marked benefit.

Case No. 12. Mozelle M. White boy, five years of age, Johnstown, Fla., referred to the State Board of Health by mother, with partially corrected talipes equino-varus of both feet. This case gave a history of having had braces at fourteen months but no plaster casts, a number of operations, probably tenotomies, but with insufficient after-correction. Condition upon admittance—right foot in fair position, somewhat flexible, with slight varus. Left foot marked talipes varus with decided contraction of the plantar fascia, prominence of the cuboid and partial dislocation of the astragalus forward.

Operation December 17th, 1912, St. Luke's Hospital, under ether anesthesia. Cuneiform osteotomy of the left tarsus was done, fascia closed and the tendon of the peroneus brevis shortened. Foot put up in plaster cast in valgus position. Patient left hospital without permission at end of second week. The cast was removed by the mother, the stitches taken out, the wound dressed with flour and the foot put in an inadequate home-made brace. The mother refused further treatment for her child, stating that she was perfectly satisfied with the result. Fortunately, the wound had healed nicely and there was apparently a very good union in the bones of the foot so that the result is reasonably satisfactory.

Case 13. Baby S. Colored male child, one year old, Jacksonville, Fla., referred directly to the State Board of Health, with neglected double talipes equino-varus. Operation at Brewster Hospital under ether anesthesia. Tenotomies of the tendo achilles of both feet. Forcible over-correction and feet put in well padded plaster in moderate calcaneo-valgus.

I desire to acknowledge the valuable assistance rendered by Dr. J. Knox Simpson and Dr. Wm. Buffalow in the surgical part of this work and the services of Dr. W. E. Ross and Dr. J. D. Love of the Medical Children's Service at St. Luke's Hospital.

Finally, I desire to express my appreciation of the uniform courtesy, the helpful advice, and the sincere interest of the State Health Officer.

RAYMOND C. TURCK, M. D.



CASE 2.—INMAN A., DOUBLE CONGENITAL TALIPES VARUS
NEGLECTED TYPE.

Operation December 17th, 1912, St. Luke's Hospital, under ether anesthesia. Cuneiform osteotomy of the left tarsus was done, fascia closed and the tendon of the peroneus brevis shortened. Foot put up in plaster cast in valgus position. Patient left hospital without permission at end of second week. The cast was removed by the mother, the stitches taken out, the wound dressed with flour and the foot put in an inadequate home-made brace. The mother refused further treatment for her child, stating that she was perfectly satisfied with the result. Fortunately, the wound had healed nicely and there was apparently a very good union in the bones of the foot so that the result is reasonably satisfactory.

Case 13. Baby S. Colored male child, one year old, Jacksonville, Fla., referred directly to the State Board of Health, with neglected double talipes equino-varus. Operation at Brewster Hospital under ether anesthesia. Tenotomies of the tendo achilles of both feet. Forceful over-correction and feet put in well padded plaster in moderate calcaneo-valgus.

I desire to acknowledge the valuable assistance rendered by Dr. J. Knox Simpson and Dr. Wm. Buffalow in the surgical part of this work and the services of Dr. W. E. Ross and Dr. J. D. Love of the Medical Children's Service at St. Luke's Hospital.

Finally, I desire to express my appreciation of the uniform courtesy, the helpful advice, and the sincere interest of the State Health Officer.

RAYMOND C. TURCK, M. D.



CASE 2.—INMAN A., DOUBLE CONGENITAL TALIPES VARUS
NEGLECTED TYPE.



CASE 2.—INMAN A., AFTER SECOND OPERATION.



CASE 3.—WILLIE B., CONGENITAL TALIPES VARUS, NEGLECTED TYPE.



CASE 3.—WILLIE B., AFTER FIRST CORRECTIVE OPERATION.



CASE 10.—VERNON R., ACQUIRED TALIPES EQUINUS AND KNEE FLEXION.



CASE 10.—VERNON R., FINAL RESULT.



CASE 13.—BABY S., (COLORED MALE 18 MONTHS) DOUBLE CONGENITAL
TALIPES EQUINO VARUS.



CASE 13.—BABY S., IN CASTS SECOND WEEK AFTER OPERATION.

LABORATORY DIVISION.

REPORT OF DR. HENRY HANSON, SENIOR BACTERIOLOGIST.

Jacksonville, Fla., January 1, 1913.

DR. JOSEPH Y. PORTER,

State Health Officer, Jacksonville, Fla.

DEAR DOCTOR: I herewith submit record of examinations made in the Central Laboratory of the State Board of Health of Florida for the year ending December 31st, 1912.

The work was conducted in the old quarters in the L'Engle building up to the 21st of March, 1912, where it was suspended and resumed in our present quarters on the following day, the 22d of March, 1912. We have not been obliged to suspend all work any one day during the entire year, although at the time we moved we only did such examinations as were considered of an emergency nature. These examinations consisted in examining swabs for diphtheria, dogs' heads for rabies, and urgent malarial and widal tests. As you can well understand, this required a great deal of thought and careful management but we succeeded in carrying on the work with a fair degree of satisfaction.

The laboratory at the present is for the most part well equipped with fixtures which are both useful and ornamental. These were made by the firm of Nissen & Anderson, of Jacksonville, and are for the most part of quartered oak with a fumed oak finish. The workmanship is of the highest order, and is a constant source of satisfaction to the individuals working in the laboratory, and an object of admiration for visitors. The laboratory fixtures in the basement are of cypress and are also of a satisfactory and serviceable nature.

The special work which has been attempted during the year, has, owing to a chain of circumstances, been temporarily abandoned. By direction of the State Health Officer we have conducted a series of experiments on drinking glasses used by the

various soda fountains in the city. Cultures were taken from the rim of these glasses by means of sterile cotton swabs. These swabs were planted on Loeffler's blood serum media and incubated for twenty-four hours at 37 degrees Centigrade. Almost without exception these cultures showed a very profuse bacterial growth. Nearly all kinds of organisms were found, from the ordinary "air organisms" to organisms which in their morphology resemble the diphtheria bacillus. At one period during an outbreak of the so-called summer "colds" we found a very high percentage of glasses showing the micrococcus catarrhalis. This was not so pronounced at other times when the epidemic of "colds" had abated. At two soda fountains where special effort was made to properly clean the glasses, good results were shown in that the cultures were negative for all important organisms; these two were W. D. Jones' fountain on East Bay street, and J. D. Boone's fountain on Forsyth street. The striking thing in other places was this: That glasses which had been cleaned and set aside ready for the next patron were, in all places except those mentioned, filthy from the standpoint of bacterial examination. Many of them showed a very, very profuse bacterial growth. Some showed a large number of organisms which were morphologically similar to the diphtheria bacillus. The efforts at cleaning were insufficient except in the places mentioned because glasses which were swabbed immediately after the patron had used it and after the glass had been rinsed by the ordinary methods employed at the soda fountains gave equally profuse bacterial growth, and in some places even more profuse after the rinsing process than before. This work will be pushed with greater vigor during the coming year and a large variety of tests made of various utensils.

Deductions suggested by this work are as follows: The custom of rinsing glasses in the tank behind the counter should be prohibited because the average person employed at the soda fountain neither takes measures to keep his tank clean, or will he change the water in such tank as frequently as he should. This is suggested from the standpoint of cleanliness. It has been said that cleanliness is next to godliness. Cleanliness means health. The results further show that glasses can be cleaned without great effort if the effort is intelligently made. The glasses which were

sprayed with sodium bicarbonate solution and dipped in a vat of alcohol, rinsed in running water were all clean. This can be done in a few seconds and does not require more time than the attendant at the fountain can give.

Cleanliness is the most important note in the gospel of public health. It is hard to conceive how a man like J. H. Long of the Remson Board could hesitate to agree that it is undesirable to encourage uncleanness in the preparation of food. It is a well known fact that this particular phase of neglect in the preparation of food is the greatest factor among the preventable causes of infant mortality. Such principles as these, together with the outcome of the trend of some of the Sedgwickian doctrines are fraught with great danger to the safety of those whose interests we, as Public Health Officials, are striving to promote. Nihilism and pessimism concerning safeguards for health and cleanliness are certainly incongruous. The consumption of rotten eggs and food prepared by uncleanly methods should be the exclusive pleasure and privilege of its ardent champions.

At the request of the Assistant State Health Officer, Dr. Hiram Byrd, a few experiments were undertaken with the idea of determining the longevity of the typhoid bacillus in different waters. These tests were conducted with distilled water, ordinary tap water as drawn in the laboratory and unaerated artesian water obtained at the city water works. There was not much difference found in these results, but on the whole the organisms were found to die out first in distilled water. In tap water and unareated artesian water the results were practically identical. This side of the work should be continued during the coming year and I trust that our help will be so replenished that we can. The object of this work was to obtain data on which to work out certain problems in sanitary engineering as applied to sewage disposal.

The routine water analyses in the past three years have not been of any real value. With only a few exceptions they have been negative for colon and typhoid. If a water analysis is deemed necessary the source of the water and surroundings should be inspected by an official of the State Board of Health, who should collect and transport the sample to the laboratory. This should be by or under supervision of one of the bacteriologists.

In connection with rabies there is much work of interest to be done. What we have done has only been enough to suggest lines along which we might work. We have had results which suggest the possibility of an intra-uterine infection. The experiments indicate that the virus does not travel only along the nerve trunks as has been suggested by past theories, but that it also travels in the circulation blood. We have also had some experiments which have suggested the possibility of developing the negri body extra corpore, and this is of very, very great importance. The far-reaching effect of this is difficult to estimate at the present time.

Among other things of interest we may mention two cases of meningitis in which we obtained the micrococcus intracellularis in pure culture, but unfortunately owing to the great amount of work and insufficient help in the laboratory we were unable to give this the attention which it required to keep a stock culture alive.

Thirty-three autogenous vaccines have been prepared during the year, and it is very gratifying to be able to state that these have had brilliant results wherever the patients have been consistent in having the vaccine administered. One case is of special interest in that the prognosis was apparently hopeless, but the results were almost miraculous. In brief this case is as follows:

The patient developed an arthritis secondary to a specific urethritis. The urethritis was only of short duration but the arthritis developed in a few weeks and progressed from bad to worse. After about two months the arthritis became more general and progressed until practically every joint in the body was involved, even the joints about the face. All the rheumatic remedies which the attending physicians had any faith in or which they considered worth trying were tried. After the young man had been in bed fourteen months I was asked to see the case in regard to the advisability of trying a vaccine. A few months before I was asked to see the case, he had been suffering from a generalized staphylococic dermatitis which gave the appearance of a weeping pustular eczema. When I saw the patient this condition was not quite so bad as it had been, but the improvement was very slight. At this time there was pus under all the finger nails and all the toe nails. The knees were ankylosed in such a way as to form an angle of 90 degrees flexion. The culture was obtained from under one of the

finger nails, where we found a fairly abundant amount of pus. This culture proved to be a strain of staphylococcus albus. From this we prepared an autogenous vaccine and gave for the first dose 125,000,000 dead organisms. the second dose 250,000,000, the third dose 500,000,000 and the fourth dose 1,000,000,000 dead staphylococci albi. In two months after this vaccine treatment was started the man was able to be out and ride a motorcycle. This is of especial interest because of the specific action of the autogenous vaccine and the prompt and rapid improvement after the administration of the first dose. Various stock vaccines had been tried in this case without any apparent relief. This is an instance showing what proper vaccine therapy will do when properly prepared and administered. This case belongs to the practice of Dr. Herman Harris of this city.

As indicated by our examinations, malaria has been on an increase here during the past year, although our percentage of positives is not so high as one might expect. Our positives are more than double what they were a year ago, but still do not begin to approach anything like the number of positives reported from Tampa for the year 1911. We had the interesting experience of finding two undoubted cases of quartan malaria in June, and on one other occasion had a case which was thought probably quartan but not definite enough for absolute diagnosis.

A number of examinations were made for the detection of cases of latent malaria. I feel very regretful about the delay exhibited in reporting these examinations because this work is important and valuable from the standpoint of information obtained. From the results in these cases we must conclude that a great many individuals harbor the parasites and are constantly infecting the anopheline mosquitoes. On the other hand the results of the routine examinations clearly indicate that many cases in this locality are obscured by the palliative administration of quinine, and a certain number are wrongly diagnosed as malaria.

A number of cases of filaria have been found in the brains of dogs which were examined for rabies. What the relationship of the filarial embryo in the dog's brain and the irritable symptoms which cause the animal to be suspected of having rabies is, I cannot say. It is very interesting, however, that in none of these cases did we find negri bodies, and in those cases which we checked by

animal inoculation no animal developed rabies. Our inference then can only be that the presence of the filarial embryo in the brain produces certain nervous symptoms which are similar to those of hydrophobia. So far as the gross anatomy and consistency of the brain is concerned it is very much like that in hydrophobia, so much so that we failed in our gross diagnosis in cases where filarial embryos were found by microscopic examination.

The work which I suggested in connection with the chromogenic organisms in this locality was started but abandoned for the same reason that a great many other efforts had to be abandoned; lack of sufficient help.

In July the writer was detailed to Chattahoochee to investigate a case of suspected bubonocoele. The case proved to be a parotid abscess broncho-pneumonia and tuberculosis.

The work during the latter half of the year has been very heavy when one considers the force which has had the work to do. We have only had two of the regular diagnostic force on duty since the first of May, with the exception of one week in June and three weeks in July. The need for a person in the capacity of utility assistant has been growing more and more apparent on account of the need of more help during the hot season and in cases of sickness. One cannot work continuously in the summer climate which we have here without a period of vacation, and owing to the necessity, which the board has recognized in granting vacations, it would be very desirable to keep up the efficiency of the laboratory work by providing a utility assistant who could be detailed to fill in, in any need of the laboratories. As the condition has been in the past we have been obliged to work the hardest in the most trying weather.

Other difficulties are such as we have encountered on account of defects in the basement floor and on account of an unsatisfactory refrigerating plant. A separate report will be made of each of these conditions embodying recommendations for alterations.

Before closing this report I wish to suggest some lines of work which I consider important for the Central Laboratory to undertake during the coming year.

The first one is that suggested by the State Health Officer, namely, the investigation of the charges against the common drinking cup. This is a problem of great magnitude, and one which will

require a large part of the time at our disposal during the year, and one which cannot be properly undertaken and finished without the addition of either a competent technician or a utility assistant, or preferably both.

The next problem which is of almost equal importance is the continuation of the work of rabies. It has occasionally occurred to me that if the efforts which I have undertaken in the past three months were successful, that it might be possible to vaccinate all valuable dogs against rabies, and probably help in the solution of rabies eradication although that, at the present time, is almost hopeless since there is presumptive evidence that hydrophobia in this state is not limited to the domestic animals but is also getting a foothold among the wild animals.

Third. A very nice and interesting bit of information that can be acquired by isolation and identification of the chromogenic bacteria of this locality.

Fourth. The longevity of the bacteria of the colon typhoid group in waters of varying degrees of purity should be worked out in accordance with the suggestion of Assistant State Health Officer, Dr. Hiram Byrd.

Fifth. The diphtheria carrier is an annual specter. Closer bacteriological investigation would show that many of these are innocuous, but that there is also a certain number of these which must share the responsibility for the annual outbreak of diphtheria in the public schools. How to handle these cases can better be determined after the results of the coming year's work are obtained. The indiscriminate administration of diphtheria antitoxin is of little value and often productive of serum disease.

Sixth. A matter which is certainly of interest to the health of the public and important from this standpoint, is the bacteriological investigation of the so-called "cold" which has appeared off and on in epidemic form here since early in the spring. On account of the discomfort and rapid spread of this malady one is obliged to recognize it as a public health problem of considerable magnitude. The question arises, "What is to be done?" The answer is for us who are engaged in the work of the State Board of Health to determine. In order to determine this we must first secure more data. I believe that we can and ought to furnish more information on this point. These continual coryzas and infectious

"colds" are certainly factors in lowering the vitality and pre-disposing the individual to other diseases. The individual who claims that these are not of bacterial origin will have the burden of proof to bear. No greater benefit could be rendered to men than to prepare a prophylactic vaccine against this most annoying and sometimes fatal malady.

The management of the laboratory routine has occupied our attention in the past but is at present on a working basis. Let the new year be one which shows some definite results actually achieved. Our opportunities are unlimited. We have all kinds of openings for work which can and will result in great good to the public of this state and at the same time keep us in the front ranks of sane advancement in public health work and information. We now have the quarters in which to do the work. Our next duty is to so equip these as to make them suitable for the undertaking of important work. The money outlay for laboratory accommodation is only going to be justified and realized when we have put in equipment and help enough to handle the problems as they come up. The diagnostic force cannot help deteriorating if they do not see anything more than the routine. And more important still, our value to the State will gradually and steadily decrease if we are simply to continue on this unvarying routine. We must have opportunity and time to investigate the new and changing technique if we are to keep abreast of the time in our line of work.

During the latter part of July and the entire month of August Dr. H. R. Mills was detailed to take charge of the Pensacola laboratory during Dr. F. A. Brink's illness and vacation. Dr. Mills deserves mention for his efficient and creditable work since he has been connected with the State Board of Health of Florida.

The personnel of the laboratory corps underwent certain changes in the latter part of the year. Dr. H. R. Mills, who had held the position of assistant in the Central laboratory during the past two years, upon request of Dr. G. H. Simon, and by his own consent, was transferred to Tampa to serve as assistant bacteriologist in the Tampa laboratory of the State Board of Health. The transfer was made in December. On the first of October Dr. Mills was detailed to Tampa for temporary duty on account of Dr. Simon's illness and has remained on duty in Tampa since that time.

Iva C. Youmans, A.B., R.N., M.D., by virtue of seniority ranks as First Assistant in the General laboratory. Dr. Youmans deserves recognition for the untiring efforts which she has shown during the summer and fall. It would not have been possible to accomplish the amount of work reported if it had not been for her interest and willingness to do extra Sunday work.

The position of Second Assistant Bacteriologist has been filled by the appointment of Dr. W. A. Claxton, formerly City Bacteriologist at Fort Smith, Arkansas.

Mr. Henry P. Brown has continued to prove himself of the greatest usefulness in the laboratory and has been instrumental in upholding the high standard of work by personally supervising reports, shipping, etc.

The stenographer, Miss Lucille Dixon, has had many irksome duties, all of which have been creditably performed.

The entire laboratory force has rendered the state an unselfish, willing and whole-hearted service, which I hope will receive some recognition.

In conclusion I wish to reiterate my appreciation of much helpful advice and the confidence and co-operation shown by the State Health Officer.

Respectfully submitted,

HENRY HANSON,
Senior Bacteriologist.

STATEMENT OF SPECIMENS EXAMINED
IN THE CENTRAL LABORATORY, JACKSONVILLE, FLORIDA, 1912

MATERIAL EXAMINED												Total	(Grand Total)
Jan	Feb.	Mch.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.		
Animal Parasites—													
Hookworms:													
Pos. ---	82	86	86	96	128	237	203	254	104	64	61	1533	
Neg. ---	149	62	89	102	113	188	276	150	102	74	86	1531	
Amoeba ---	1	1	---	2	4	1	---	2	---	1	1	14	
Ascaris Lumbricoides ---	1	---	1	6	4	3	5	1	---	---	1	27	
Tapeworms ---	5	2	---	1	1	3	1	5	2	---	5	25	
Trichuris ---	---	---	---	1	2	---	1	---	4	---	---	20	
Diphtheria—	---	---	2	1	---	---	---	---	---	---	---	---	3150
Swabs:													
Pos. ---	9	14	7	7	3	14	17	13	30	28	19	169	
Neg. ---	45	71	32	27	6	10	18	25	46	53	147	490	
Doubtful ---	12	28	21	12	5	2	4	8	18	31	44	189	
Cultures:													
Pos. ---	12	32	17	12	9	13	28	18	48	59	59	310	
Neg. ---	40	68	43	28	9	7	17	20	43	51	174	511	
Doubtful ---	5	7	4	9	---	1	5	4	10	12	21	79	1748
Gonorrhoea—													
Pos. ---	10	12	16	15	20	18	18	9	12	9	12	162	
Neg. ---	18	16	17	18	29	18	24	17	20	14	8	217	
Doubtful ---	---	4	1	---	4	1	1	2	3	1	3	20	399
Malaria—													
Pos. ---	9	7	13	8	27	37	52	15	45	50	19	318	
Neg. ---	184	135	105	117	115	160	140	130	152	92	84	1550	
Doubtful ---	14	4	8	9	11	25	21	22	26	21	14	190	2058
Pathological Specimens--													
Adeno-Carcinoma ---	---	---	1	---	1	1	1	---	---	---	---	4	
Adenoma ---	---	---	---	---	1	---	---	---	---	1	---	2	
Carcinoma ---	---	3	3	1	1	---	1	---	1	1	---	11	
Cancer of Cervix ---	---	---	1	---	---	---	---	---	1	---	---	2	

[illegible]

SPECIMENS EXAMINED IN JACKSONVILLE LABORATORY—CONTINUED

MATERIAL EXAMINED												Grand Total
Jan.	Feb.	Mch.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
Rabies—Continued												
Pig, Doubtful												
Tuberculosis:												
Pos.	29	24	27	37	22	27	27	26	29	26	29	1
Neg.	57	78	132	81	71	96	93	47	87	78	63	338
Doubtful	1	2	1	3	2	2	2	1	1	1	2	973
Typhoid:												
Pos.	19	13	13	10	20	18	19	19	18	15	21	207
Neg.	41	45	68	73	116	119	149	132	121	72	66	1100
Inc.	13	10	7	8	13	15	14	13	16	7	4	126
Para-Typhoid:												
Neg.	22	22	2	5	2	3	4	4	4	4	4	4
Urinalysis												
Water for Sewage Contamination—												
Pos.	1	5	2	4	2	3	3	2	1	1	1	1
Neg.	1	5	2	4	2	3	3	2	1	1	1	17
Doubtful												
Miscellaneous—												
Animal Inoculations.												
Antigenous Vaccines.												
Asparin	2	6	2	1	1	1	2	1	1	2	1	7
Anemia	7	6	2	5	4	5	2	2	2	2	2	33
B. Coli	1	1	1	1	1	1	1	1	1	1	1	1
Bacterial Count	1	1	1	1	2	1	2	2	1	1	1	3
Blood Count—	1	1	1	1	1	1	1	1	1	1	1	2
Differential	1	1	1	1	1	1	1	1	1	1	1	2
Plain	129	81	2	23	9	17	13	1	4	2	1	284
Cultures	7	4	1	1	3	2	2	2	17	1	2	17
Cup Series	4	4	1	1	8	7	5	5	4	4	1	30
Cat Plague	1	1	1	1	16	1	1	1	16	1	1	16
Casts	1	1	1	1	1	1	1	1	1	1	1	1
Diazo Test (Ehrlich's)	1	1	1	1	1	1	1	1	1	1	1	1
Filaria	1	1	1	1	2	1	1	1	1	1	1	5
	1	1	1	1	2	1	1	1	1	1	1	4

Feed—Bacterial Examination—

Feed—Bacterial Examination—	1000	869	829	746	778	839	1118	1155	938	959	794	981	
Glands	—	—	—	—	—	—	—	—	—	—	—	—	1
Hemoglobin	—	—	—	—	—	—	—	—	—	—	—	—	1
Leprosy—	2	—	—	—	—	—	—	—	—	—	—	—	2
Pos.	—	—	—	—	—	—	—	—	—	—	—	—	—
Neg.	—	—	—	—	—	—	—	—	—	—	—	—	2
Leukemia	—	—	1	2	2	—	—	—	—	—	2	—	2
Liver	1	—	1	1	—	1	—	—	—	—	—	—	5
Myiasis	—	—	—	—	—	—	—	—	—	—	—	—	3
Meningitis	—	—	—	—	1	—	1	1	—	—	1	—	1
Mite	2	—	2	—	—	2	—	—	—	—	—	—	3
Ophthalmia—	—	—	—	—	—	—	—	—	—	—	—	—	6
Pos.	—	—	—	—	—	—	—	—	—	—	—	—	1
Neg.	—	—	1	1	—	—	2	2	—	—	—	—	6
Rat Autopsy	—	—	—	—	—	—	—	1	—	—	1	—	3
Ringworm	—	—	—	—	—	—	—	16	—	—	—	—	16
Syphilis	—	—	—	—	—	—	—	—	—	—	—	—	2
Spinal Fluid	4	4	4	—	—	1	—	2	—	—	1	—	12
Unclassified	—	—	—	—	—	—	—	—	—	—	—	—	6
Totals by Months	3	2	2	31	3	1	3	—	—	—	2	2	54

REPORT OF DR. G. H. SIMON, BACTERIOLOGIST,
TAMPA, FLA.

Tampa, Fla., January 1, 1913.

DR. JOSEPH Y. PORTER,

State Health Officer, Jacksonville, Fla.

DEAR DOCTOR: It is with pleasure that I herewith submit to you my annual report of the work done in this laboratory during the year, 1912, together with a tabulated statement of the specimens examined.

At the annual meeting of the State Board of Health in February, 1912, the Bacteriologist in charge of the Tampa laboratory was authorized to secure the services of a stenographer who should perform the clerical duties of the laboratory, as well as those of Dr. Bartlett, local agent for the State Board of Health. We were further authorized to purchase a typewriter, desk, etc. Miss Mary Valdespino was appointed stenographer and has since been rendering valuable assistance in the laboratory, keeping record of examinations made, mailing notices, etc.

Owing to certain circumstances that arose during the year, it became necessary that but one bacteriologist was on duty in this laboratory for a period of three and a half months.

In July, when it became known that bubonic plague existed in Porto Rico and Havana, the State Health Officer, to ascertain whether or not the disease might have been carried into any of the seaport towns of our State, decided to have a thorough examination made of rats, especially those caught along the water front in Tampa and Key West.

Accordingly, Dr. R. L. Benson was detailed from Tampa to Key West on temporary duty, where he conducted a thorough investigation. This left but one bacteriologist on duty in Tampa, and while all examinations could not be made as promptly as might have been desired, those specimens that appeared to be of a more urgent nature were given preference over others. Many of the less urgent ones, such as specimens to be examined for intestinal

parasites, tubercle bacilli, etc., were sent either to the laboratory at Jacksonville, or Pensacola, where they were given prompt attention.

It has occurred to me, having been short-handed in the laboratory during the past year on several occasions, that a third bacteriologist stationed at Tampa might be of value, particularly at such times when it might become desirable to carry on special work or investigations—such as examinations for bacillus pestus—to determine the source of typhoid outbreak, etc. With the opening of the Panama Canal in the not very distant future, when the countries in the west coast of South America will be brought close to our very door, such investigations may become a necessity from time to time.

Recently there has been some change in the personnel of the laboratory force. Dr. R. L. Benson resigned his position as Assistant Bacteriologist on October 1st, Dr. H. R. Mills being transferred from the laboratory in Jacksonville to Tampa to fill the vacancy caused by the resignation of Dr. Benson.

At the instance of the State Health Officer, we have, since the month of October, become equipped to make, and are making, examinations in suspected cases of rabies for Tampa and the surrounding territory. This has been the means on several occasions in saving valuable time in starting treatment on patients who had been bitten by rabid animals. This particular work requires the keeping of animals—especially rabbits—for inoculation, and frequently for observation for a long period after inoculation. Unfortunately, we have no place to keep animals other than in the autopsy room on the first floor. This has not proved to be a very satisfactory arrangement for obvious reasons. I would, therefore, respectfully recommend that a suitable animal house be provided where we could keep rabbits under observation after inoculations have been made and where we could breed and raise them for future use.

Respectfully submitted,

G. H. SIMON, M. D.,
Bacteriologist in Charge of Tampa Laboratory.

STATEMENT OF SPECIMENS EXAMINED
IN THE TAMPA LABORATORY, DURING THE YEAR 1912

MATERIAL EXAMINED	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total	Grand Total
Animal Parasites—														
Hookworms:—														
Pos.	20	17	21	14	4	7	24	16	11	25	28	18	205	
Neg.	50	45	55	39	21	38	26	28	42	46	42	50	482	
Unfit											2		4	
Amoeba:—														
Pos.	5	7	14	1	1	1		1		3			33	
Neg.	10	14	53	39	22	3	9	6	6	12	10	7	191	
Ascaris	1	5	3	3		2	1	1	3	3	2	4	28	
Lambliia Intest.		3	15	3	3	1	1	2	2	2			32	
Oxyuris Vermic.			1						1				2	
Taenia		3	4		1	1			2	2	1		14	
Trichiuris		8	8	2	1	5	3	5	7	8	6	5	62	1053
Diphtheria—														
Pos.	3	18	23	8	14	25	9	30	13	30	29	21	223	
Neg.	39	27	46	19	26	28	21	22	24	55	45	55	407	
Doubtful		1				3			2	7	2	4	19	649
Gonorrhoea—														
Pos.		5	4	7	14	9	2	5	10	17	11	12	122	
Neg.		7	10	13	5	17	18	9	10	13	15	17	153	
Doubtful			1	1		1	2	4		1		1	11	286
Malaria—														
Pos.	29	27	45	113	156	54	25	27	28	38	30	19	592	
Neg.	183	221	172	153	158	195	155	140	204	243	189	187	2200	
Doubtful	3								2	1	3	3	12	2804
Pathological Specimens—														
Malignant	3	1		3		1				1	1	7	14	
Non-malignant	4	1	1	3		1				1	2	4	17	31
Rabies—														
Dogs, Pos.												2	2	

Dogs, Neg.														2
Others, Pos.														1
Others, Neg.														1
Tuberculosis—														
Pos.	9	29	11	24	2	16	16	14	13	14	10	27	185	6
Neg.	44	72	67	58	22	49	44	44	47	60	42	55	604	
Doubtful						1							1	
Typhoid—														790
Pos.	31	40	34	12	20	27	5	5	4	9	8	39	234	
Neg.	81	130	128	92	90	75	81	83	71	57	63	67	1018	
Inc.	6	18	16	9	7	5	2	3	2	2	5	12	87	
Animal Inoculations												2	2	1339
Blood Counts—														
Differential		2	3	1		1						1	8	
Plain			2			2				1	2	5	12	20
Leprosy—														
Pos.														
Neg.														
Ophthalmia—														4
Pos.														
Neg.														
Urinalysis														
Diazo Reactions—														6
Pos.	5	3	2	1	1	3	1	1					17	
Neg.	1	2	1	1									7	
Pos.	3												5	
Neg.	1	2	1	1	8	2	2		1		1	1	20	
Filaria—														
Pos.														
Neg.		1			1	1	1		1				7	12
Spirochaeta Pallida—														
Pos.														
Neg.														8
Rats for Bac. Pestis—														
Pos.														
Neg.														3
Miscellaneous														
			5	4	1		25	89	11				125	
													11	
Total by Months	547	711	778	623	581	574	474	537	518	653	553	636	7185	

REPORT OF DR. F. A. BRINK, BACTERIOLOGIST, PEN-
SACOLA LABORATORY

Pensacola, Fla., January 1, 1913.

DR. JOSEPH Y. PORTER,

State Health Officer, Jacksonville, Fla.

DEAR DOCTOR: I take pleasure in handing you herewith a tabulated report of specimens examined in this laboratory last year. It shows a total of 2,889 specimens examined as compared with 1,787 in 1911, and this seems to me to be a very satisfactory growth.

An effort was made during the year to gather accurate data in regard to typhoid fever in the city, with a view to finding some source of infection. A special data blank was gotten out on the multigraph, and copies supplied to physicians who had cases of typhoid. Not one of these blanks was returned.

This may have been due in part to the fact that typhoid is not a reportable disease, as the writer believes it should be.

However, there was not a large number of cases in the city, and the few that did occur probably got the infection on account of the large number of unsanitary out-houses and a considerable number of flies.

Respectfully yours,

F. A. BRINK, M. D.,

Bacteriologist.

STATEMENT OF SPECIMENS EXAMINED

PENSACOLA LABORATORY, 1912

[illegible][illegible]

REPORTS FROM COUNTY AGENTS

ALACHUA COUNTY.

J. Harrison Hodges, M. D., Agent, State Board of Health.

The only unusual departure from normal health conditions in Alachua county during 1912 has been an epidemic of dengue fever, which prevailed during the fall.

I saw the first case, in which the diagnosis seemed positive, about the middle of September. In a little while there were literally dozens of new cases each day. In a population of 40,000 in the county, I estimated that at least 5,000 people suffered more or less from the disease during the following three months. In every epidemic of this kind there are always a large number of "walking cases." Before pronouncing it dengue I had the blood of thirty consecutive cases examined for malaria with negative results.

The difficulty of diagnosing the disease positively is unfortunate. The chills and fever which accompany the disease cause many physicians to erroneously diagnose it "malaria," and the severe aching and catarrhal symptoms cause others to swear it is "la grippe." However, the dengue chills differ from the malarial chills in two marked particulars. The dengue chill usually comes at night, and quinine does not seem to have the slightest effect in preventing its return, which it is prone to do after a few days or week. It is to be hoped that the disease will be more scientifically studied and that new and much-needed information will be given to the profession in regard to it. To have a visitation from it every few years, prostrating thousands as it surely will, with our meager knowledge of it, and the absence of any satisfactory antidote, is a disquieting outlook.

Whence cometh it? Is it mosquito-borne?

DADE COUNTY.

Report of Dr. J. M. Jackson, Agent, State Board of Health.

Miami, Fla., January 1, 1913.

DR. JOSEPH Y. PORTER,

State Health Officer, Jacksonville, Fla.

DEAR DOCTOR: It becomes time to make an annual report of the doings of your Agent in Dade County.

During the past year there have been very few contagious diseases of a quarantinable nature within Dade County.

There have been four cases of smallpox—one of which the source of infection was impossible to trace. The others were colored laborers on a work-train of the Florida East Coast Ry., which were removed from the train; the crew vaccinated and the camp cars disinfected, after which time there was no further occurrence, the last case being discharged April 23, 1912.

There have been a few cases of scarlet fever and diphtheria, but as these were promptly isolated and cared for there was no further infection.

In a way it is to be regretted that owing to the ease with which diphtheria is treated and cured by antitoxin and also the mildness of the trouble in this climate, that I fear the milder cases are oft-times not recognized and pass on to spread infection until some one comes down with a severe case, which is soon overcome by the use of antitoxin. I believe, though, that the profession is beginning to realize this more fully and in a short time all cases of sore throat, no matter whether suspicious looking or not, will be treated by isolation and a culture made from the throat to decide or to diagnose absolutely.

I am glad to report that there has been a decidedly more careful handling of tubercular patients in Dade County during the past year.

I am also glad to report that the population is being aroused to the possibility and dangers of hookworm, and where the patient presents the least physical symptom or a possibility of hookworm, the patient as well as the profession is looking to the examination of feces for the confirmation of a diagnosis.

As I have reported before, the amount of hookworm in Dade County is very small or has been up to the present time, still where

the case is not recognized we know how easy it could be spread and become a menace to the entire county and I think this care that is being more generally taken now in examination of cases, to be for the good of the county in future time.

During the past year there has been much discussion and considerable work done in Miami regarding sanitary conditions, milk handling and many other things which come more directly under the head of municipal sanitation. While there has not been that amount of good come from these agitations that was hoped by your agent, still I believe the seeds have been planted and it is only a short time till we will see much fruit from the discussions which have taken place.

It has been the custom of your agent to say as little as possible in any discussion or matter that may arise, but in all things to listen carefully and when his advice was asked, to give those seeking it, the benefit of his knowledge as to the best lines of sanitation and sanitary science obtainable by him.

On the whole I do not think Dade County has ever enjoyed a more healthful year than it has during 1912, which I think has in a large measure been due to the discussion of sanitation; and education of the public in general along sanitary lines as we know the general education of the people in sanitary matters will do more good to abate disease than all the laws that can be put on the statute books.

Respectfully,

JAMES M. JACKSON.

ESCAMBIA COUNTY.

Report of Dr. J. Harris Pierpont, Agent, State Board of Health.

Pensacola, Fla., February 7, 1913.

DR. JOSEPH Y. PORTER,

State Health Officer, Jacksonville, Fla.

DEAR DOCTOR: I beg to enclose herewith my annual report for 1912, together with the customary data from the records of this office for more detailed specifications of work accomplished, both by myself and Sanitary Inspector Cusachs.

The report has been delayed by the unusual amount of work required of me in keeping in touch with the outbreak of smallpox.

Conditions here now are somewhat improved, but am expecting

an increase of cases throughout the county as a result of the country people coming to Pensacola during the Carnival which was held during the first part of the week. This is why I went before the Board of County Commissioners and urged that they provide free vaccination in all of the principal towns of the county. They appointed a committee with power to act, and I am hoping they will attack the problem vigorously, and at once.

Yours very truly,

J. HARRIS PIERPONT,

Agent.

Hookworm Disease.—There would seem to be less interest manifested in this disease than in the preceding year, and very few cases have come to the attention of the profession, especially in the city of Pensacola and larger towns of the county.

Tuberculosis.—As this is not a reportable disease, there is no way of ascertaining the number of cases occurring in the county. The deaths, however, are three less than reported for the year before, and nearly half as many as occurred in 1910. This decreasing death rate is due in large measure to the vigorous crusade of education conducted here only a few years ago, and proves the soundness of the modern methods of treating the disease.

Smallpox.—There were reported for the year less than a third of the cases for the preceding year, which is a remarkable showing considering the number of unvaccinated people, especially among the colored population.

Malarial Fever.—There are still quite a large number of cases and some deaths, but accurate data cannot be obtained. As stated in last year's report, little improvement can be expected until the local health authorities properly enforce the health laws, and spend the necessary money for the purpose of destroying the breeding places of the malarial mosquito.

Typhoid Fever.—There has been a gratifying decrease in the number of deaths from this cause, as there were only eleven compared to thirty-three of the year before.

The attached statement comparing the conditions existing during the years 1911 and 1912, and embracing other contagious diseases, not already mentioned, shows a decided improvement upon the whole. The ciphers used in the report do not mean that there were no cases, but that no cases were reported to this office.

COMPARATIVE STATEMENT SHOWING THE NUMBER OF CASES AND DEATHS FOR THE YEARS 1911 AND 1912

	1911.		1912.	
	No. cases.	No. deaths.	No. cases.	No. deaths.
Tuberculosis	0	42	0	39
Smallpox	109	0	30	0
Typhoid fever	0	33	0	11
Diphtheria	13	1	16	1
Scarlet fever	18	0	7	1
Pellagra	16	8	0	3
Anterior Poliomyelitis ..	10	0	0	0
Measles	0	4	0	5
Whooping cough	0	8	0	0

FRANKLIN COUNTY

Report of Dr. F. F. Ferris, Agent of the State Board of Health of Florida.

Apalachicola, Fla., Jan. 1, 1913.

DR. JOSEPH Y. PORTER,

State Health Officer, Jacksonville, Fla.

DEAR DOCTOR: I herewith submit my annual report as local representative of the State Board of Health in Franklin County.

We had no trouble in handling the smallpox situation in 1912 owing to the good work done in 1911 by your Assistant State Health Officer, Dr. Diggett.

There was little opposition to vaccination and we vaccinated all of the school children both white and colored, who had not been vaccinated or did not show a good scar. This was done free of charge.

We treated twenty cases of smallpox of which five were white and fifteen colored, with no deaths.

There have been three cases of diphtheria, all treated with antitoxin, no deaths. Only one case of typhoid fever occurred and that was contracted in New Jersey.

As to hookworm disease, there was nothing for the state to do in Apalachicola, as we have treated all cases that came under our notice for the last eight years.

If it were not for malaria, we would have very little sickness, and as the people are becoming better informed with regard to cause and prevention it is becoming less prevalent.

The public health is better in Apalachicola than it has been in years.

Yours very truly,
F. F. FERRIS.

HAMILTON COUNTY

Report of Dr. R. Dean Tompkins, Agent, State Board of Health.

Health conditions in Hamilton County have been fairly satisfactory the past year. It is true that there were the usual number of cases of malaria and the ordinary endemic diseases but there were no severe epidemics.

Typhoid was especially mild both in number of cases and in severity. There was the usual number of tuberculosis. There was a small epidemic of smallpox but no fatal cases that I am cognizant of.

There has been no public work done on hookworm, tuberculosis or any sanitary points this year. Work of this kind is, of course needed.

Very respectfully yours,
R. DEAN TOMPKINS.

HILLSBORO COUNTY.

Report of Dr. Charles Wm. Bartlett, Agent of the State Board of Health.

TAMPA, FLA., Jan 1, 1913.

DR. JOSEPH Y. PORTER,
State Health Officer, Jacksonville, Fla.

DEAR DOCTOR: In the annual report for this County for the year 1912, three diseases were the main ones that have prevailed: Typhoid fever, dengue and smallpox.

Typhoid fever began to increase during the early part of last year, especially in the section of the city known as Hyde Park. Dr. Byrd of the State Board of Health was sent over for investigation,

and he made a special report of the condition which then existed. The large number of cases continued up to the month of June, dropping to five in July, three in August, two in September, six in October, five in November, and then all at once increased to thirty cases in December.

I have called the attention of the Mayor of the city to this increase, and an effort was made to see if we could succeed in having the open closets screened, but up to the present time Tampa has made no move in this direction, and I expect that the year 1913 will have an increased rate of typhoid fever.

There are large appropriations made for completing the sewerage system of the city, but this will probably take several years before it can be accomplished.

In connection with typhoid fever and its prevention in the city of Tampa, the only real step that has been taken, is the passage and enforcement of the city ordinance similar to the State law compelling the restaurants and eating places to be thoroughly screened. This, although a small step, is going to be productive of good.

The state law No. 6195 dealing with the screening of all eating places has been enforced in this city since the month of June, 1912, but during the early part of the winter some of the Spanish restaurant keepers began to neglect their places so far as the screening was concerned, during the night. With the assistance of the city ordinance now, I believe that the law will be strictly enforced.

Dengue appeared in Tampa during the middle of September and all through the month of October and November prevailed to such an extent, that very few of the inhabitants of the city escaped. There were a few deaths in the persons of old and feeble people, resulting from this disease. At the same time that dengue prevailed there were also some cases of "La Grippe."

Smallpox prevailed in this city from February 21st, to June 3rd, and again started on the first day of December, the total number of cases for this year being thirty-five, of which eleven were white. The demand for vaccination has not been so great this year as the previous one.

Hydrophobia was prevalent among dogs to such an extent as has

never before been seen in this section. There were a number of persons bitten, seven coming under my own personal care. There were two deaths in this city and one outside the city, from hydrophobia. One case was that of a small child bitten in the face and although he received the Pasteur treatment, developed the disease and died. In the other two cases no effort was made to have the Pasteur treatment given; in fact, no physician was called until the disease had developed.

The balance of the work in this office for the year 1912 was in connection with the suppression of public nuisance, generally caused by individuals, but in two cases by the railroad.

Respectfully submitted,
CHAS. WM. BARTLETT,
Agent State Board of Health.

JACKSON COUNTY.

Report of Dr. Theop. West, Agent State Board of Health.

Marianna, Fla., Dec. 30, 1913.

DR. JOSEPH Y. PORTER,
State Health Officer, Jacksonville, Fla.

DEAR DOCTOR: Enclosed find my annual report. The health conditions of Jackson County during the year of 1912 have been unlike that of any preceding it in the history of the county in the unprecedented prevalence of malarial fever. There are about fifty-five physicians in the county and it is the consensus of opinion that there have been more cases of malarial fever throughout the county the present year than ever known before in the county's history. I find it a very difficult matter to arrive at the definite cause of this condition. It is the opinion of your Agent as well as other members of the medical profession, that this condition has been brought about by the immense rain-fall in the county during the months of January, February, March and April.

There have been quite a number of cases of malarial haematuria in different portions of the county during the fall and winter months. This is considered a very serious disease from which 90 per cent of the cases generally prove fatal.

Pneumonia has been very prevalent during the entire year, the

death rate has been very high especially in the negro population. It is my opinion that in many instances malarial poison has been the exciting cause of this disease.

During the year I have had under my management four hundred and fifty-three cases of smallpox, from which about three deaths resulted. These occurred as follows: In the month of January seventy-five cases; February one hundred and fourteen cases; March one hundred and five cases; April fifty cases; May forty-nine cases; June thirty cases; July twenty cases; December one. About eighty or ninety per cent of these were confined to the negro population. Vaccination was employed as a preventive by your Agent and other physicians of the county with good results.

There have been very few cases of typhoid fever in the county in the present year, less than for a number of years before.

A number of cases of diphtheria developed in the City of Marianna and in other portions of the county. The antitoxin treatment when applied, proved successful in arresting the disease in nearly every case.

Some few cases of pellagra have occurred in the county, one in Marianna which proved fatal regardless of all treatment.

Measles and mumps have been prevalent in Marianna and in some other parts of the county.

Some cases of tuberculosis have occurred in the county which proved fatal.

The hookworm disease is very prevalent in all parts of the county and is attracting the general attention of the members of the medical profession. The State Board of Health through its Assistants and State Health Officers has performed very efficient service in curing this disease in and around Marianna and in dispensing medicine during the month of November. Every effort has been made by the medical profession to co-operate with the State Board of Health to protect the people from the ravages of disease. The sanitary condition of the towns and villages of the county is not as good as it should be. The town authorities as a rule have been very indifferent in carrying out the rules laid down by Health Officers of the State.

Very truly yours,

THEOP. WEST.

MANATEE COUNTY.

Joseph Halton, M. D., Agent, State Board of Health.

DR. JOSEPH Y. PORTER,
State Health Officer, Jacksonville, Fla.

MY DEAR DOCTOR: I wish to report that Manatee County has been exceptionally free from its general report of malaria, diphtheria, and smallpox. The spread of dengue fever has been rapid but is in a very light form.

Three cases of diphtheria.

Four cases of measles.

Very truly yours,

JOSEPH HALTON.

DAYTONA, FLA.

Report of Dr. R. Howe, City Health Officer.

Daytona, Fla., Jan. 1, 1913.

DR. JOSEPH Y. PORTER,
State Health Officer, Jacksonville, Fla.

DEAR DOCTOR: As you request, I submit my report as follows:

The city records show for the year 1912, up to the present time fifty-one births, thirty-eight deaths, and sixteen cases of contagious disease.

I have been City Physician since June 14th, and know from experience during that time, that the reports are incomplete, and more or less inaccurate. Some physicians do not report at all, especially the colored; and there is a great tendency to conceal contagious disease. During March, April, and May, we had several cases of smallpox. The first case developed among the help of the Clarendon Hotel. The colored person who had the first case came from Jacksonville.

This was diagnosed according to rumor at least as "Cuban itch." The case was not quarantined nor isolated but merely sent to the colored settlement of Midway. Several more cases developed which were diagnosed anything from chicken-pox to "bumps." March 1st, I was called to Anna Primus, colored, who was in bed with "bumps." I at once diagnosed the case as smallpox and reported it to the proper authorities. Very little was done however,

and after the resignation of Dr. E. L. Stewart, June 14th, I was instructed by the City Council to stop it at any cost. At that time there were three families, all colored, with smallpox, with a total of four cases. These families were at once quarantined, a red flag placed in front with strict orders for no one to leave the place or enter. Two more cases came down in these families, but only two more cases outside developed after methods of isolation were carried out. After complete recovery and desquamation, bed clothing in immediate contact with the patient was burned, and the house fumigated. All mattresses and clothing left were spread out or hung on lines. Windows and doors closed, keyholes and chinks corked up and a crater sulphur candle was ignited and the place kept closed for twelve hours. These methods stopped the trouble entirely. No new cases developed until October 18th. I was informed that a colored family had the "bumps." The same methods were used here, and there have been no cases in the city since.

The city has no sewer system, and where dry closets are in use the bucket system is in vogue, the buckets being emptied every two weeks. Tanks are supposed to be screened, and pools of water oiled, but this is carried out in a very loose sort of a way.

Sincerely,

ROY HOWE,
City Physician.

SUMMARY OF DEATHS IN THE CITY OF KEY WEST, FLA., FOR THE
YEARS 1911 AND 1912.

1911.		1912.	
January	54	January	36
February	43	February	26
March	71	March	31
April	43	April	39
May	50	May	37
June	27	June	26
July	29	July	35
August	24	August	33
September	29	September	21
October	30	October	32
November	24	November	23
December	28	December	28
Total	452	Total	367

S. D. W. LIGHT,
City Health Officer.

VETERINARY DIVISION.
STATE BOARD OF HEALTH OF FLORIDA.

DR. C. F. DAWSON, VETERINARIAN.

REPORT OF DR. C. F. DAWSON

Jacksonville, Fla., January 1, 1913.

DR. JOSEPH Y. PORTER,

State Health Officer, Jacksonville, Fla.

DEAR DOCTOR: I have the honor to present the Annual Report of the Veterinary Division for the year 1912.

The usual diseases have existed but no diseases new to Florida live stock have invaded the State.

Respectfully submitted,

C. F. DAWSON, *Veterinarian.*

DISEASES IN HORSES AND MULES.

Glanders is by far the most important disease in equines, even if the deaths have been exceeded by other diseases. Fortunately there have been no outbreaks of the disease that resulted seriously to anyone but those who were responsible for its occurrence through their own carelessness.

Two outbreaks of this kind were caused by the owner bringing into Florida from Georgia, animals that were visibly affected, upon arrival. One man lost five and another fifteen head.

While the losses in live stock were confined, so far as is known, to the original owners, these animals must have infected the cars in which they were shipped, and it is probable that animals shipped in the same cars, subsequently, contracted the disease. The owners took advantage of the "glanders law," and claimed \$75.00 for each of their animals that contracted the disease from those shipped-in animals. Thus the owners lost heavily and the State had to pay its legal share of the losses, including the expenses of eight time-consuming and expensive visits to these animals.

Had Florida demanded a veterinary inspection of these animals prior to shipment from Georgia, the owners as well as the State would have been saved this expense. The Federal Government prohibits the interstate shipment of such animals, and expects the state to do likewise.

There are only seven states today which have not adopted regulations for the entry of animals from other states. Florida is

one of the few that opens its doors to any and all animals without questioning their physical condition.

On December 5th, 1912, the United States Live Stock Sanitary Association, then in annual session at Chicago, received and adopted the report of the committee appointed to draft regulations which should be uniform for all the states. These regulations are herewith presented with the recommendation that Florida adopt the same.

REPORT OF THE COMMITTEE ON UNIFORM REGULATIONS, PRESENTED
TO AND ADOPTED BY UNITED STATES LIVE STOCK SANITARY
ASSOCIATION, AT CHICAGO, DECEMBER 5, 1912.

Section 1: The importation by railroad, boat, in wagon, by express or other common carrier; on hoof or in any other manner, of live stock diseased or exposed to disease into the State of ----- is hereby prohibited; and to determine which fact the following regulations shall be observed by all persons, firms, transportation companies, corporations, express companies and other common carriers; State Veterinarians and all other officials State and Federal, authorized to inspect and issue certificates of health for live stock.

Section 2. It is hereby ordered that any person, firm, corporation or any common carrier wishing to import bulls, work oxen or female cattle over six months old not intended for immediate slaughter, into the State of ----- must procure before shipment a health certificate and a tuberculin test chart in triplicate from a veterinary inspector of the B. A. I., the State Veterinarian or Assistant State Veterinarian, or a Veterinarian whose competency and reliability are certified to by the authorities charged with the control of diseases of domestic animals in the state from which the cattle are to be transported or moved. The original of this health certificate and tuberculin test chart must be attached to the waybill. The duplicate health certificate and tuberculin test chart must be sent to the State Veterinarian or proper official at destination in ample time to reach him before the arrival of the cattle.

The triplicate health certificate and tuberculin test chart must be sent to the proper state official at place of origin. The health certificate and tuberculin test chart must show that the cattle are

free from Texas fever ticks, tuberculosis and all contagious, infectious and communicable diseases. The tuberculin test chart must show that at least three temperatures were taken before injection of tuberculin two to three hours apart and five temperatures were taken after injection two hours apart, beginning ten hours after the tuberculin was injected.

Section 3. It is hereby ordered that any person, firm, corporation or any common carrier wishing to import horses, mules or asses into the State of ----- must procure before shipment or movement in any other manner a health certificate and a mallein test chart in triplicate from a Veterinarian, Inspector of the B. A. I., the State Veterinarian or Assistant State Veterinarian, or a veterinarian whose competency and reliability are certified to by the authorities charged with the control of diseases of domestic animals in the state from which the horses, mules and asses are to be transported or moved. The original, duplicate and triplicate copies of the health certificate and mallein test chart shall be handled as certificate and tuberculin test chart as provided for in Section 2. The health certificate and mallein test chart must show that the horses, mules, or asses are free from all contagious, infectious and communicable diseases, and the test chart must show that at least three temperatures two to three hours apart taken before injection and five temperatures were taken after injection two hours apart, beginning ten hours after the mallein was injected.

Sec. 4. It is hereby ordered that any person, firm, corporation or any common carrier wishing to import sheep or goats in the State of ----- for purposes other than immediate slaughter, must procure before shipment or movement in any other manner a certificate of inspection issued by an inspector of the United States Bureau of Animal Industry, certifying that the sheep or goats are not affected with any contagious, infectious or communicable disease, including scabies, and that they have been dipped once within ten days of time of entry into the state in either a nicotine or lime-and-sulphur dip which has been approved by the United States Bureau of Animal Industry. Provided, however, that sheep and goats, not accompanied by certificate as above indicated may be shipped by rail or boat to points within the State of ----- if billed to or through public stock yards where Fed-

eral Government inspection is maintained, and there unloaded and dipped under the supervision of an inspector of the United States Bureau of Animal Industry.

Section 5. It is hereby ordered that any person, firm or corporation or any common carrier wishing to import swine into the State of -----for purposes other than immediate slaughter must procure before shipment or movement in any other manner a health certificate in triplicate from a Veterinary Inspector of the B. A. I., the State Veterinarian or Assistant State Veterinarian or a Veterinarian whose competency and reliability are certified to by the authorities charged with the control of diseases of domestic animals in the state from which the swine are to be transported and moved. The original duplicate and triplicate copies of the health certificate shall be handled as certificates and tuberculin test chart as provided for in Section 2. The health certificate must show that the swine are free from all contagious, infectious and communicable diseases and have been immunized against hog cholera by the Dorset-McBride-Niles Serum not more than thirty days prior to shipment.

Section 6. It is hereby ordered that cars, boats and other vehicles used in the transportation of all live stock into or within the State of -----shall first be cleaned of all litter, washed and disinfected with a mixture made with not more than $1\frac{1}{2}$ pounds of lime and $\frac{1}{4}$ pound of pure carbolic acid to each gallon of water or liquid cresolis compositus (U. S. I.) (6) six ounces to every gallon of water.

On June 8, 1909, the Governor approved:

"An Act to Provide for the Prevention, Suppression and Control of Dangerous Contagious and Infectious Diseases in Domestic Animals and Live Stock, and to Impose certain Duties and Confer certain Powers on the State Board of Health for Such Purposes."

A careful reading of the Act shows it to be very comprehensive and to leave nothing unprovided for. It provides for the payment of not more than \$75.00 indemnity for glandered horses mules or jacks destroyed by the owner upon the demand of the state, provided that the animal has been owned in the state one year previous to its condemnation, and provided further that no one shall be paid for more than ten animals, in any one year.

Section 9 says: "The owner of such animal or live stock shall be entitled to be paid for such animal or live stock by the State Board of Health in the following manner:" and then provides for the appointment of appraisers who must allow the owner whatever they can agree the animal is worth, not exceeding \$75.00, "taking into consideration their actual value and condition at the time of such appraisalment."

Although this bill was very carefully drawn and seems to cover all points it has not been entirely satisfactory in its application in several instances. Only recently, a widow farmer's horse was condemned for glanders and the duly appointed appraisers, misunderstanding the wording as well as the intent of the law, said in their report the animal was worth nothing, a view which any veterinarian or experienced stockman knows is correct. The State Board of Health could not question the decision of the appraisers, yet it is clearly seen that the law has been misapplied in this case, just as much as if the appraisers had exceeded the amount allowed by law; because the law specifies the animal is to be paid for "in the following manner," etc. (Section 9.)

In another case, twenty-three animals valued at \$3,445 were legally condemned by the state, in 1909. Under the law the appraisers could only allow the maximum, \$750.00 for ten of the animals. A relief bill was introduced by the owners, in the Legislature of 1911, and the difference, \$2,695.00 was ordered paid from the State Board of Health fund. This Act set aside that provision of the law which provides for the payment of only ten animals in any one year to a single individual or firm. In another case, twenty-one animals that had not been in the state one year were paid for under relief bill passed by the 1911 Legislature. In this case the law was set aside in two particulars. Firstly, two of the animals were dead when the Veterinarian arrived, and therefore died uncondemned, nor had they been in the state one year. Secondly, the nineteen others had not been in the state one year. These twenty-one animals were ordered paid for from the State Board of Health fund, at the rate of \$75.00 per head.

It therefore appears that the state pays a poor widow who complies with the law, in every particular, nothing for her glandered horse, while in two other cases, the owners, who may know more

about affairs of this kind, can get payment, even to the extent of having the law set aside.

If the provision of the law, which requires a residence of one year in the state can be set aside and animals that have been here for three months are paid for, why could not an animal that had been in the state for a shorter time be paid for? Could not an unscrupulous dealer collect all the glandered animals from adjoining states, bring them to Florida, and demand, under the above precedents, the full indemnity or even more?

The following table indicates the number of cases, their distribution and other information, for the year 1912.

CASES OF GLANDERS FOR WHICH REIMBURSEMENT HAS BEEN MADE DURING THE YEAR

County.	Town.	Month.	Owner.	No. animals killed.	Reim- bursed.
Hillsboro	Ybor City	Jan.	J. L. Cone	1	\$ 75.00
Pinellas	St. Petersburg	Mar.	H. E. Henry	3	225.00
Hillsboro	Tampa	Mar.	City Transfer	2	150.00
Hillsboro	Tampa	Mar.	J. E. Carter	1	75.00
Duval	Jacksonville	Mar.	J. W. Clayton	1	75.00
Duval	Jacksonville	Mar.	Samuel Smith	1	75.00
Hillsboro	Tampa	Mar.	H. A. Barksdale	3	225.00
Hillsboro	Tampa	Mar.	J. G. Anderson, Jr.	1	75.00
Hillsboro	Thonotosassa	Apr.	Lee & Edwards	2	150.00
Hillsboro	Tampa	Apr.	Knight & Wall	1	75.00
Pinellas	St. Petersburg	Apr.	H. E. Henry	2	150.00
Holmes	Bonifay	Apr.	W. D. Hewett	1	75.00
Washington	Southport	June	D. M. Dismuke	1	75.00
Hillsboro	Tampa	May	Tampa Steam Laundry	1	75.00
Hillsboro	Tampa	May	U. S. Wright	1	75.00
Hillsboro	Tampa	Apr.	Miller & Jackson	2	150.00
Jefferson	Monticello	Aug.	Babb & Norton	1	75.00
Hillsboro	Tampa	Aug.	Robt. McLaughlin	1	75.00
Hillsboro	Tampa	Sept.	Tampa Dairy Co.	1	75.00
Duval	Jacksonville	Sept.	Renfro & Williams	4	300.00
Duval	Jacksonville	Nov.	H. B. Mann	1	75.00
Holmes	Esto	Nov.	W. R. Dees	1	75.00
St. Johns	Switzerland	Nov.	Isham Butler	1	75.00
Duval	Jacksonville	Nov.	Andrew Williams	1	75.00
Duval	Jacksonville	Nov.	W. H. Lanier	1	25.00
Duval	Jacksonville	Dec.	W. D. Hollings	1	75.00
Holmes	Bonifay	Dec.	D. L. Green	1	75.00

38 \$2,800.00

CEREBRO-SPINAL MENINGITIS, STAGGERS.

We are still in the dark as to this peculiar disease in the equines. So far as I know, nothing has developed during the year to prove that the old theory as to causation, mouldy feed, and drinking water containing decomposing plants, is, or is not correct. Certain it is that in nearly every outbreak, causes of this kind can be located. It is equally certain that outbreaks are endemic in nature, and that removal of animals from a farm or stable in which the disease is occurring to a place where there is no disease, will apparently stop the outbreak, and that the moved animals do not carry the disease with them.

The disease killed large numbers of horses and mules in Florida during the past summer and all that could be advised was for owners to change the environment of the animals, move them to a place where the disease was not present. If the disease is due to eating damaged feed or drinking polluted water, the indications for immediate treatment are purges and diuretics followed by stimulants. In many cases, the onset is too sudden to expect response to treatment. In others, treatment may help the animal to recovery, and in still others the animal may recover spontaneously.

DISEASES IN CATTLE.

In many states tuberculosis or consumption in cattle is the most important disease. In Florida this is not true. While it is not intended to convey the idea that cattle are not frequently found tuberculous, the general statement that the disease does not at present prevail in Florida cattle—meaning natives—is true. Investigation, meaning the application of the tuberculin test, has shown that most of the reactors to the test have been brought into the state, and that the disease does not tend to spread from these infected animals to other sound animals to the extent that obtains in states to the north where the animals are housed more closely and for a much longer period. In other words, the environment of Florida cattle is such that a disease of this nature has not a good chance of spreading. The writer has been surprised more than once at the results obtained in herds of dairy cattle made up entirely of native-born animals. An opinion formed as to the existence of the disease because of the emaciated condition of the animal under test has

been entirely reversed by the results in many instances. So that emaciation in native-born Florida dairy cows should not influence one in his opinion as to the existence of tuberculosis. Rather should we charge up this condition to chronic Texas fever, and work for the extermination of the tick that causes it. However, the state should protect itself against the introduction of the disease and the possible infection of the native stock by requiring bills of health accompanied by a tuberculin test record for all bovines shipped into the state. This requirement would put Florida in line upon dairy sanitary matters with forty-one other states and save our people the trouble, annoyance and expense of having cattle tested after arrival in the state.

In order to bring to notice the hold which dairy sanitation has on the public the following regulations governing the production and handling of milk and cream offered for sale in the cities of Tampa and Jacksonville are inserted.

RULES AND REGULATIONS THAT MUST BE COMPLIED WITH IN ORDER
TO SELL MILK AND MILK PRODUCTS IN THE CITY OF
TAMPA, FLA.

First. Each person, firm or corporation desiring to sell, or in any manner dispose of milk, or milk products within the City of Tampa, shall make application to the Dairy Inspector for a permit, and shall furnish him a certificate in writing, of the number of cows owned or used by him in the production of such milk, or milk products and the location of stables where said cows are fed and milked.

Second. Any person, firm or corporation who sells or otherwise disposes of milk, or milk products, in the City of Tampa, without a permit will be punished as provided for in the City Ordinance.

Third. All Dairymen shall immediately notify the Inspector in writing when any additional cows are added to the herd. No cow will be allowed in the herd except those that have been tested by the Dairy Inspector with tuberculin for tuberculosis. Each cow so tested shall be marked in the ear with a tag bearing a serial number and the words "Inspected, Tampa, Florida," and such cow or cows may be re-tested any time as the Inspector deems it necessary. The owner of said cow, or cows so tested shall pay the said

Inspector the sum of \$3.00 for the first cow and 25 cents for each additional cow so tested; said sum to be paid at the time of inspection.

Fourth. If upon inspection any cow is found diseased with tuberculosis, the owner shall have the right to call a competent Veterinarian who, together with the said Inspector, shall select a third person and the three shall re-examine said cow or cows and if a majority of those examining find that said cow or cows are so diseased it will be the duty of the owner to immediately remove said condemned animals from his premises, kill or otherwise dispose of them.

Fifth. No milch cow shall be sold or offered for sale within the City limits of Tampa, or be brought within, or be used within the City limits of Tampa, as a milch cow until said cow or cows have been inspected by the Milk Inspector, and the vendor of any such cow or cows shall furnish a certificate with each cow sold.

CONSTRUCTION OF DAIRY BARNES.

All Dairy Barns or stables shall be properly constructed and shall be floored with cement, or sound heart boards, water-tight, and so arranged that it can be easily drained. The interior of every barn shall be given a coat of whitewash every year. No closets, hog pens, or quarters for other animals, fowls, other than a Dairy shall be allowed closer than one hundred feet to such barn; excepting, however, stalls for horses or mules, provided same are separated from Dairy barn and are kept in a sanitary condition.

MILK HOUSE.

Each Dairy shall have a properly constructed milk house to be at least ten (10) feet from any cow stall or stable: doors and windows must be screened and have a properly constructed sink where bottles, cans and all utensils may be washed, and also provided with a drain pipe to carry off all waste water, at least one hundred feet from milk house, water supply and barn. The milk house shall not be used for any other purpose than handling milk and milk products.

BARNYARD.

All barnyards must be kept clean and dry and all manure shall be gathered daily and piled no closer than one hundred feet from milk house, dairy barn and water supply. Each yard shall have a trough to be kept clean and containing a sufficient supply of pure, fresh water.

MANAGEMENT OF COWS.

Groom the entire body of the cow daily. Before each milking wash the udder and teats with a cloth used only for that purpose and wipe with a clean dry towel; the tails should be kept clean by frequent washing. Cows shall not be fed distillery waste, swill or any substance that is not wholesome. Each cow shall be allowed free movement in the open air at least six hours each day and shall be treated in a humane manner. All dairymen shall notify the milk inspector immediately of any sickness that may occur among his cows at any time.

MILKERS.

All milkers must be personally clean. Before milking the hands should be washed in warm water with soap, and nail brush, and on no account should the hands be wet while milking. The milkers should have light colored washable suits which should be kept in a clean place and washed at least twice a week.

UTENSILS.

All utensils should be as simple in construction as possible, and so made that they may be thoroughly sterilized before each using. Each dairy shall have an aerator of approved type over which the milk should be poured as it is strained; said aerator to be filled with cold water or ice. Sanitary milk pails must be used, and the milking done through a cheesecloth strainer. All utensils including bottles, must be thoroughly cleansed and sterilized. This can be done by first rinsing in warm water, then washing with brush and soap or other alkaline material in hot water, and then thoroughly rinsing, and then sterilized by boiling or steam pressure and kept in a place free from flies or dust until used.

MILK.

All milk which has been added to, or adulterated in any manner shall be taken and condemned, and the vendor shall be punished as provided by the City Ordinance.

No milk shall be sold which contains more than $87\frac{1}{2}\%$ of water or less than 3.2% butter fat, and the specific gravity of which at sixty degrees Fahr. shall be between one thousand and twenty-nine and one thousand and thirty-three, and must not contain more than five hundred thousand bacteria per cubic centimetre.

All milk from cows thirty days before and ten days after calving must be rejected. The first few streams should be discarded in order to free the milk ducts from the milk that has remained in them for some time, and in which the bacteria are sure to have multiplied greatly. If any part of the milk is bloody or stringy, or unnatural in appearance, the whole quantity yielded from that animal must be rejected. Remove the milk from each cow immediately to the milk house and strain through a cheesecloth strainer. The rapid cooling is a matter of great importance. No milk should be delivered to customers or any milk depot at a higher temperature than sixty-five degrees Fahr. All milk must be bottled or put in cans in the milk house and delivered to customers or milk depots in the original package.

MILK WAGONS.

Each wagon used in the delivery of milk shall have the name of the owner or proprietor or dairy, and the number of the permit under which the business is conducted, painted thereon in prominent letters. All wagons shall be provided with covers and shall be kept neat and clean; the inside of wagons shall be scrubbed with soap and hot water at least twice each week. No vegetables or waste products shall at any time be hauled in any wagon used for the transportation of milk.

HEALTH CONDITIONS.

Each Dairyman shall report any sickness in his family that is of a contagious nature, or among his employees within twenty-four hours to the City Health Officer, or Milk and Dairy Inspector.

DELIVERY OF MILK.

It is unlawful for any person who sells or delivers milk in bottles to remove or accept such milk bottles from the person to whom, or the premises where delivered, where there is any case of infectious disease on said premises. All persons receiving milk on any such premises shall furnish proper receptacles for said dairyman into which the milk shall be poured from the original package. Any milk bottles that the milk inspector finds in the possession of any person other than the owner of said bottles, or receptacles, he shall immediately report to the Chief of Police of the City of Tampa.

RULES AND REGULATIONS THAT MUST BE COMPLIED WITH FOR ANY PERSON, FIRM OR CORPORATION CONDUCTING A DAIRY DEPOT IN THE CITY OF TAMPA.

The owner of such place shall at all times maintain such place or premises in a strictly sanitary condition. Such places to be open for inspection during business hours at all times. All ice boxes and refrigerators in which milk is kept shall be kept in a sanitary condition, being scrubbed at least once in each week; said boxes to be drained according to the Inspector. There shall be no open closets, hog pens or other quarters for other animals, or fowls, closer than one hundred feet from such dairy depot, provided that this shall not apply to water closets connected to the city sewerage system, and maintained in a clean and sanitary condition. If at any time there shall be any contagious disease among any one connected with the handling of milk it will be the duty of the owner to report within twenty-four hours to the City Health Officer, or the Milk and Dairy Inspector.

MILK OF EXCEPTIONAL EXCELLENCE.

Dairymen who wish to put a milk of exceptional excellence on the market will be allowed to use the words "Certified Milk" on their labels provided they shall comply with the rules that I have heretofore prescribed for the operation of other dairies, and that the milk shall not contain over twenty thousand bacteria per cubic centimeter, and shall at no time contain pathogenic germs. It shall also contain 4% of butter fat and other customary ingredients in pro-

portion. It shall not be delivered to customers at a higher temperature than fifty degrees Fahr., and shall always be delivered in sealed packages, and so sealed with a special seal labeled "Certified Milk."

There shall be arrangements of water under pressure to flush dairy barn and milk house. There shall also be arrangements for steam sterilization of all cans, utensils and bottles. If a dairyman complies with all of the general rules laid down in the preceding sections he shall receive from the Inspector and City Board of Health a certificate of the unusual excellence of said milk and the Inspector upon request shall give such certificate if the conditions respecting such milk are found to exist.

STERILIZED MILK.

All milk sold as sterilized milk shall at all times prove to be such and dealers purporting to sell sterilized milk shall be suspended from business should their milk prove not to be sterile.

These Rules and Regulations are taken from the Ordinance governing the sale of milk in the City of Tampa and will be strictly enforced.

R. I. GORDON,
Milk and Dairy Inspector.

JACKSONVILLE, FLA., MILK ORDINANCE.

REGULATIONS GOVERNING THE PRODUCTION AND HANDLING OF MILK AND CREAM INTENDED FOR SALE OR DISTRIBUTION IN THE CITY OF JACKSONVILLE. ADOPTED BY THE CITY BOARD OF HEALTH, JACKSONVILLE, FLA., JUNE 8, 1910.

1. *The Barn Yard.*—The barn yard must be free from manure and well drained, so that it may not harbor stagnant water. The manure that collects each day should be taken not less than 100 feet away from stable and milk room.

2. *The Stable.*—In the stable strict cleanliness must be observed. The room in which the cows are milked should have no storage loft above it. The stable must be well ventilated by not

less than two square feet of window space per cow, drained, and must have tight floors, preferably of cement; never of dirt. The walls must be kept clean and free from cobwebs and dirt. The air in and about the stable should be fresh and reasonably free from odor. The manure should be removed twice daily between milkings. The manure gutter must be kept clean and in a sanitary condition. All sweepings and flushings must be finished before the cows are brought in for milking.

3. *Feed.*—All feed bins must have tight fitting covers. Feed mixed with water must not be kept standing uncovered in stable before feeding time. Distillery slops must not be kept within fifty feet of stables where cows are milked. The feeding of any slops, refuse from any distillery or brewery, glucose, malt or other food that has been subject to fermentation, putrefaction or decomposition is prohibited.

4. *Cleaning Cows.*—No dirt or manure shall be allowed to accumulate on sides, flanks or udders of cows. The hair on flanks and udders must be kept cut close. The tail shall not be long enough to touch the ground. Before each milking the udder must be thoroughly *washed and dried* with clean cloths or towels. The cow must be kept standing after cleaning until the milking is finished. The milk from each cow shall be removed from the stable as soon as milked.

5. *The Milkers.*—Before milking, all milkers shall wash their hands with soap, water and nail brush; no milking shall be done with *wet* hands. All domestic animals, as cats, dogs, chickens, pigs, etc., shall be excluded from stable during milking.

6. *Rooms Used for Sterilizing Utensils.*—The room or rooms where utensils are washed and sterilized, or where milk is bottled, shall not communicate directly with a kitchen and shall be thoroughly screened from flies and be kept clean and in a sanitary condition at all times. All bottles shall be capped and cans covered, immediately on being filled.

7. No water closet, privy, urinal or inhabited room shall be located within any building used for stabling cows for dairy purposes or for the storage of milk or cream.

8. No milk shall be kept for sale in any store, booth or stall except in tightly stoppered bottles or jars.

9. *Utensils.*—All utensils should be as simple in construction as possible, to facilitate cleaning and sterilizing. Coolers and bottling machines should be made of metal and sterilized before use. Cans must have smoothly soldered joints. Pails must have openings not exceeding eight inches in diameter. All utensils must be thoroughly cleansed and sterilized.

10. No milk shall be sold in the city, which contains over two hundred thousand bacteria per cubic centimeter.

MYCOTIC STOMATITIS—A DISEASE IN THE MOUTH AND FEET IN CATTLE.

During the summer there prevailed in many parts of Florida a disease in cattle which manifests itself by soreness of the lips, mouth, feet, teats and udder, by nasal catarrh, and by a tendency to remain lying down. Correspondents state the animals are sore and stiff, won't eat, lie down much of the time, and when made to get up, act like a foundered horse.

This disease is not a new one, as it has occurred in Florida in the past, and is frequently found in the Eastern, Central, Western and in the Southern States.

The disease is known by various names, as mycotic stomatitis, non-infectious foot and mouth disease, aphthous stomatitis, sore-mouth, sore-tongue, etc. The authorities of the Bureau of Animal Industry prefer the first mentioned name, mycotic stomatitis, because, as that name indicates, it is a disease of the mouth resulting from the ingestion of forage infected with a fungous disease.

Mycotic stomatitis is not an infectious disease and is frequently so mild in character that it escapes notice, or does not demand serious attention. There are cases, however, in which all the symptoms appear in an aggravated form, and which end fatally. Animals of all ages may be affected. The disease rarely or never attacks all the members of a herd, and seems to affect milch cows oftenest, although the range animal is not immune. Although it closely resembles the infectious foot-and-mouth disease of Europe, the fact that it does not rapidly spread from animal to animal, that hogs and sheep remain unaffected, and that no people have become affected from using the milk, it is easily differentiated from that very

serious bovine disease, Aphthous Fever, or Foot-and-Mouth Disease, of European countries.

The actual cause of the disease has not been determined, but it is known that the various rusts and fungous deposits which occur on forage plants are very irritating to the lining of the mouth, and thin skin at the margins of the hair and hoofs, and to the skin between the claws, as well as to the skin of the teats and udder. Certain climatic conditions are required to produce an outbreak, and this fact explains the appearance of the disease at irregular intervals and in different localities. It may be expected to appear when a hot, dry period is followed by excessive rain, because such conditions produce a luxuriant growth of molds and fungi.

The first symptom is the refusal of food because it is painful for the animal to take food. This is followed by "loss of the cud." There are frequent movements of the lips and a collection of froth forms at their margins. The appetite is not entirely lost, as the animal will nibble at the softer parts of the hay, and will swallow food placed upon the back part of the tongue.

Examinations of the mouth and tongue will reveal the cause of the refusal of food. These parts will appear red and sore, and small blisters, which soon burst and form ulcers an inch or more in diameter, will be found. In bad cases the ulcers may appear on the outside of the lips and on the muzzle. The disease frequently extends up into the nasal cavities, producing a yellow catarrhal discharge from the nostrils.

The feet become sore in the pastern regions. The fore, hind and sometimes all four feet may be simultaneously affected. Sometimes blisters and ulcers are noted at the union of hair and hoof, and also between the claws. When the animal lies down to relieve the pressure upon the sore feet, it will frequently remain down for long periods. When it rises, it walks stiffly and the owner is very apt to locate the trouble in the muscles or joints, and to speak of the animal as being "foundered." While there may be some fever, it is not a prominent symptom, and the temperature is frequently found to be normal. Sometimes there is diarrhoea, the passages being dark and foul-smelling. In some cases the teats become fissured or cracked, and painful to the touch. Milk secretion is diminished, or suspended early in the course of the disease, and as

may be imagined, loss of flesh is rapid, in many cases. It thus becomes, even when occurring in a mild form, a very serious trouble to the dairyman, or to a family where the children depend upon the milk for food.

Mycotic stomatitis is not, of itself, a serious disease, in most cases, and recovery will take place in ten days, in the majority of cases, when the animal is removed from the pasture which caused it, and when the proper remedies are applied. In its worst forms, the animal may die in ten days or less.

Treatment.—The first and most important thing to do is to remove the animal from the offending pasture, and provide it with soft feeds, such as bran, mash, ground feed and gruels. The finer parts of the hay, when moistened so as to soften it, will probably be taken by those mildly affected, as the appetite is not entirely lost. It is important that the animal be provided with cool water. The mouth should be swabbed out three times a day with an antiseptic, such as a two per cent solution of carbolic acid, or of creolin, and this should be followed by a half tablespoonful of finely powdered alum or borax, placed upon the tongue. When desired, the carbolic acid wash may be given in another and more convenient way. Instead of the wash, thoroughly mix two tablespoonfuls of pure carbolic acid in a quart of bran mash, every morning, and give to each full grown animal, for a period of five days. Reduce the amount of carbolic acid when treating a calf, or yearling. Range animals may be given the carbolic acid treatment most conveniently by thoroughly mixing four ounces of crude carbolic acid with twelve quarts of table salt and placing this mixture in troughs protected from rain. The feet should be bathed with a two per cent solution of carbolic acid or of creolin. The cracked teats should be anointed with carbolized vaseline. When an animal begins to eat, of its own accord. The following tonic stock powder is recommended:

Linseed meal	16 ounces
Fenugreek	8 ounces
Ginger	6 ounces
Common salt	8 ounces
Hyposulphite of soda	4 ounces
Sulphate of iron	2 ounces

Mix thoroughly and give a handful in the feed to each full grown animal. Give less to calves and yearlings.

THE HISTORY OF TEXAS FEVER.

The State Board of Health is directed by law to look after the health of our domesticated animals as well as that of the people. This it has been doing for a number of years, and has had constantly in its employ, the best veterinary talent it could obtain since 1902.

It is now proposed that Florida get into line with the other Southern states and start the work of eradicating the cow tick, which causes a disease of the blood which prevents that thrifty condition necessary in cattle that makes the raising of them a paying business. It is claimed by statisticians that this cow tick causes a loss of from \$40,000,000 to \$200,000,000 annually.

So it seems that this fact alone is the best reason that can be given for eradicating the tick. It seems wonderful that an agricultural interest can thrive under this enormous handicap, and also that comparatively so little has been done to remove it.

HISTORY OF TICK FEVER IN CATTLE.

It may not be amiss at this time to say something of the history of tick fever in cattle. Dr. Salmon, chief of the Bureau of Animal Industry, in his letter of transmittal to the Secretary of Agriculture of the manuscript of Smith and Kilborne's work on Texas fever said:

"In the whole list of diseases affecting domesticated animals there is none so peculiar in its character or so mysterious in its phenomena, as was this one, previous to these researches. The dissemination of the deadly contagion by apparently healthy cattle, and the harmlessness in general of the really sick animals were inexplicable by any facts which were furnished by the study of other diseases. Veterinarians who had not had an opportunity to observe this disease were skeptical in regard to the correctness of such conclusions, and some spoke of them as a 'romance in pathology.' These early observations have not only been confirmed, but the

phenomena have been explained and our knowledge placed upon a scientific basis.

EARLY OBSERVATIONS.

"That Southern cattle in a state of health might bring destruction to Northern cattle was observed as early as 1796 by Dr. Pease, who observed an outbreak of the disease among cattle, in Lancaster county, Pennsylvania, following the passage of a herd of cattle from South Carolina. Dr. Pease made it the subject of an interesting communication in which he pointed out the peculiar fact that though the Southern cattle themselves seemed healthy, they scattered a peculiar disease in the northern territory they crossed. The literature upon the disease was very meager in those days, and the next important contributions were from the pens of Dr. R. C. Stiles of the Metropolitan Board of Health, Drs. John Gamgee, John S. Billings and Curtis of the National Government, in 1868. In that year, Texan cattle shipped up the Mississippi river to Cairo and thence by rail into Illinois and Indiana early in June, caused during that summer, enormous losses in cattle in those states. Eastern cattlemen became alarmed because cattle shipped from those states were dying of tick fever in the New York stock yards, and elsewhere. The cattle commissioners of New York State and the Board of Health of New York City became alarmed as to the possible harmful effect of such diseased meat upon the human health.

BOUNDARY LINE DETERMINED.

"The most important special contributions were next made by Dr. D. E. Salmon, in his annual reports, as chief of the bureau of animal industry, in the year 1883-1884-85, in which years he determined the boundary line of the permanently infected territory.

"While it had long been known that this peculiar fever did not occur except where the cow tick existed, the relation of the tick to the disease was not definitely established until 1889, when it was observed by Smith and Kilborne, of the bureau of animal industry, that when young ticks are placed on cattle there develops a high fever accompanied by extensive loss of the red blood-corpuscles. These observations were repeated and confirmed in 1891 and 1892. However, Smith, in 1889, made the most important discov-

ery connected with the disease. On October 23, 1889, he read a paper at the Brooklyn meeting of the American Public Health Association, in which he stated he had discovered a peculiar micro-organism in the red blood corpuscles of cattle suffering from tick fever, that it was the cause of the disease, and that this newly discovered organism was carried by the cow tick. This was a most important discovery, as it was the first instance in which it was proven that diseases may be insect-borne.

AN INCURABLE DISEASE.

"Tick fever may be said to be an incurable disease, or at least treatment is usually unsatisfactory as animals surviving an attack of acute tick fever generally make a slow recovery and during the convalescent period are more subject to the attack of other diseases, owing to the resulting anaemia. The old answer for the treatment of diseases, given by the pert first year medical student—'remove the cause,' applies with great force here, when changed to 'remove the tick.' In all sanitary work, however, it is necessary to have the co-operation of the people in order to bring about the desired result; and this applies with special force in the eradication of an insect. There seems no special difficulty in exterminating the cattle tick, because of its peculiar life history. What has been and is being done in other states, can also be done in Florida.

"The latest reports show that about one-fifth of the tick infested territory has been already cleared of the tick. This work has been carried on by the co-operation of the federal, state and county governments, and already the results have been very pleasing and profitable to those sections that now enjoy a free and unrestricted cattle business with the great Northern markets.

ORIGINATOR OF TICK ERADICATION METHOD.

"The idea of tick eradication seems to have been originated by Dr. Cooper Curtice, former zoologist, and now veterinary inspector in the Bureau of Animal Industry. Dr. Curtice was also the first to study the life history and development of the tick. His researches paved the way for tick eradication. In 1899, while State Veterinarian of North Carolina, he presented a plan of action to the

commissioners of agriculture of that state for improving the cattle industry, by tick eradication. That plan was put into operation, and by 1906, or in seven years, twelve counties in North Carolina had been released from quarantine. This practical demonstration of the feasibility of tick eradication attracted the attention of the federal authorities and also the other Southern states, and congress was asked for a small appropriation to be applied in assisting those states which had live stock laws, competent to deal with the subject.

"The federal appropriation was in 1907, \$82,500; in 1908, it was increased to \$150,000; and since, it has been \$250,000 annually. Congress will be asked for an appropriation of \$750,000 at the coming session.

ELEVEN STATES CO-OPERATING.

"In 1906, there were fifteen states more or less infested with ticks. Nine hundred and twenty-nine counties in these states were under federal quarantine on account of ticks. When the work was begun only seven states had laws that would enable the Bureau of Animal Industry to co-operate with them. Therefore, work could only be started in Virginia, North Carolina, Georgia, Kentucky, Tennessee, Oklahoma and California. Since then, four other states, South Carolina, Alabama, Mississippi and Arkansas have enacted laws which allow of tick eradication.

"Up to April 1, 1911, or in five years, Virginia had cleaned up 24 counties of ticks. North Carolina had, unassisted, cleaned up 12 counties, when the work was started elsewhere in 1906; since 1906, with federal aid, that state has cleaned up 30 more, making 42 in all.

"In South Carolina, four counties are clean; in Georgia, 3; in Tennessee, 26; Alabama is clearing up 7 counties, Mississippi has cleaned 3; Arkansas 10; Louisiana 2; Oklahoma 7; Texas 7; California 3½; Missouri 4; Florida none. In all the states mentioned, except Florida, the work is in progress and, no doubt, many more counties will soon be released from quarantine.

"To state it another way, there were, originally, 741,515 square miles of tick infested territory in the United States. The cleared

area, up to April 1, 1911, was 139,821 square miles, or one-fifth of the mileage area."

The above article on the history of Texas fever was presented for reading at the first meeting of the Florida Live Stock Association held at the University of Florida, December 17-19, by the State Health Officer.

THE CATTLE TICK.

Further study into the history of the cattle tick—the cause of Texas fever—brings to light the following information and shows that in all probability the cow tick was first collected and studied in Florida.

In 1818 Thomas Say, curator of the Philadelphia Academy of Sciences, with three companions, made a scientific survey of Fla. He collected ticks from deer, and in 1821 published a description of them which shows his specimens were of the same species as those now infesting Florida cattle. He named his tick *Ixodes annulatus*.

In 1867 C. V. Riley found the same tick infesting cattle in Missouri and named it *Ixodes bovis*. In 1891 Cooper Curtice changed the name to *Boophilus bovis*. Later, the name *Boophilus annulatus* was applied and now we call the great fever-producing tick of North America, *Margaropus annulatus*.

OTHER SPECIES IN OTHER COUNTRIES.

The United States is not the only country that is infested with a fever-producing cattle tick; but no other country has our species.

There are three distinct species of fever-producing ticks, the North American, the Australian and the South African. The Australian species produces this cattle fever in Australia, South America, Cuba and Porto Rico and therefore has a very wide distribution.

There are eight different kinds of ticks that infest our cattle in the United States; but only one of these species can carry the fever. This one species is found resident only in the South, below the federal quarantine line, and is the most numerous of all. The body of the full grown engorged female is oblong-oval in shape and may reach one half inch in length. The color varies from a dull yellow to an olive brown and often is streaked with wavy lines of

these colors. There are two longitudinal grooves on the back, at the front of the body, and three at the rear. These are more prominent at times, especially after the tick has dropped from the animal. The head parts are short and broad and of a chestnut brown color.

SOME OTHER TICKS.

From the tick eradicator's standpoint all ticks look alike. The harmless ones cannot produce Texas fever, but all species succumb to the arsenical solution, so that the question of the species cuts no figure in tick eradication operations. The harmless ticks have a different life cycle from the fever-producing tick. This tick, the common cow tick, cannot reach maturity unless it gets upon cattle, horses, or mules, while all the other harmless kinds can develop independently. When the common cow tick does get on horses and mules, its progeny cannot produce Texas fever, but may acquire the germ from Southern cattle, whose blood always contains the parasite. Their progeny then become as infectious as those reaching maturity on Southern cattle.

While it is known that the fever germ is carried from cow to cow by the tick, no one has ever been able to discover the germ in the tick themselves, nor will extracts made by grinding the ticks and injecting this material into susceptible cattle produce the fever. Yet we can readily produce the fever by injecting a small quantity of blood from a Southern cow into a Northern cow or by putting a few of the seed ticks upon a Northern cow. These seed ticks hatch out from the eggs laid by the old tick when she falls from the cow.

TRANSMITTED THROUGH THE EGG.

It therefore follows that the germ of Texas fever is in some way transmitted through the egg to the young seed tick. These young ticks are very small and are barely visible when they first get on cattle. Hence they are at that stage capable of producing the fever and the susceptible animal may be very sick and even die without the owner noticing any ticks.

Other interesting facts are that the germ will live in the blood of animals removed from the South to the North for at least thirteen years. Texas fever can be produced by injecting some of this

animal's blood into Northern cattle. Rough handling or bad treatment may induce a fatal attack of the fever in this supposedly immune animal. This explains why and how it is that Texas fever has occurred in animals when no ticks could be discovered on them.

ALLEGED IMMUNITY OF SOUTHERN-BORN CATTLE.

The mere fact that a cow is Southern born, does not mean that she is immune to Texas fever. In fact it is claimed today that there is no such thing as immunity to Texas fever. However, Southern cattle do acquire a resistance when they are attacked by ticks from birth that the Northern-born cattle do not possess.

On account of the many failures to immunize cattle against the fever and in this way improve the Southern breeds by the importation of finer cattle from the North and West, those interested in the subject have given up the idea, which at one time promised so much.

It was found that even though a fine bovine did successfully run the tick gauntlet the incessant attacks of ticks devitalized and impoverished the blood so that succeeding generations showed plainly a loss of the stamina possessed by the original stock. The logical thing to do is, therefore, to get rid of the cause—the tick—by the methods now in vogue for tick eradication. A result of this practice will be not only improvement of the scrub cattle as scrubs, for it can improve them in no other way, but farmers will be encouraged to improve their cattle by the introduction of finer animals of the beef and dairy types.

The following upon the life history of the cattle tick is copied from an address delivered by Dr. E. M. Nighbert, at the University of Florida.

LIFE HISTORY OF THE CATTLE TICK.

Facts on which the campaign for eradicating the pest is based: An intimate knowledge of the life history of the cattle tick is necessary. A knowledge of the manner in which the tick propagates must be had before eradication can be carried on intelligently and successfully.

Only a part of the development of the tick takes place on cattle,

the remainder occurs in the pastures and ranges. The female tick, which is attached to the skin of cattle, increases enormously in size as a result of drawing large quantities of blood, and when fully filled with blood drops to the ground, where she at once begins to search for a suitable hiding place that will serve as a protection from the sun and enemies. These large juicy ticks are sometimes destroyed by ants, and thousands perish as the result of unfavorable conditions, such as hot weather, dry weather, or extremely wet conditions in the ranges, pastures, or swampy conditions that exist in the State of Florida. Thousands and thousands of ticks are destroyed in this way in the state without having laid any eggs. This condition accounts for few ticks appearing on cattle at times and many more at other times, depending on climatic conditions.

Egg-laying begins during the spring, summer and fall months in two to twenty days, and during the winter months in thirteen to ninety-eight days, depending on weather conditions. The eggs are small, elliptical shaped bodies, of a light amber color that later changes to dark brown, one fiftieth of an inch in length, coated with a sticky secretion that causes them to adhere in clusters and keeps them from drying out. During egg-laying the mother tick gradually shrinks and dies when all eggs have been laid. The egg laying period continues from four days in warm weather to a hundred days if the weather is cool or cold, and during this period from several hundred to five thousand eggs may be deposited.

THE FIRST STAGE.

Within a few days in summer to several days in fall or winter after the eggs have been deposited they begin to hatch. From each one issues a small six legged seed tick, amber colored, later changing to a rich brown. It is very active in warm weather, but does not travel any distance. Its instinct is to ascend the nearest bit of vegetation, such as grass, herbs or shrubs and wait for cattle. If cattle do not come its way it dies of starvation.

During its life in the pastures and ranges, the seed tick takes no food and does not increase in size. It must reach cattle or die of starvation. This fact is significant and is taken advantage of in the work of eradication of ticks. Their endurance, however, is very great, and under certain conditions they may live without

nourishment from four and a half to six or eight months, especially during the colder part of the year.

The length of the period from the time females drop to the ground until all the seed ticks hatching from the eggs layed by them are dead, or in other words, the time required for pastures and ranges to become free of ticks after all cattle, horses and mules have been excluded or treated regularly every two weeks by dipping or spraying with the standard arsenic solution, varies with the season of the year being shortest during the warm season and longest during the cold season. For example, all the seed ticks resulting from females dropped June 15th will be dead by November 1, a period of four and a half months; but some of those resulting from females dropped September 1, may survive for seven or eight months.

THE SECOND STAGE.

Further development begins when the tick reaches cattle, horses or mules. It at once begins to draw blood and increase in size. In about seven days it sheds its skin and the color changes from brown to white, the new form having eight instead of six legs, and known as a Nymph. In another seven days the Nymph tick sheds its skin. It is now sexually matured, and it is at this stage that males and females are conspicuous for the first time. The male tick is about one-tenth of an inch in length, it never becomes larger and displays great activity in moving about on the animal. The female is slightly larger but shows much less activity, seldom moving from her point of attachment previous to molting. After mating with the male, she rapidly engorges with blood, and in eighteen to twenty-one days, after first attaching as a seed tick, she drops to the ground to repeat the cycle of development. You see then, by treating cattle regularly every fourteen days, the chain of life is broken, never to be again mended. The tick is completely exterminated. To accomplish this, all cattle, horses or mules using the ranges, pastures or cow lots that are infected must be considered.

TICK ERADICATORS MEET LAW MAKERS.

On January 3 and 4, duly appointed delegates from ten of the tick infested states had hearings before the house and senate committee on agriculture at the capitol in Washington.

On January 2, the delegates held a preliminary meeting at the Hotel Raleigh in Washington, for the purpose of deciding upon a line of action. At this meeting it was decided to divide the time allowed so as to give each delegate five minutes to explain the needs of his state.

ASK FOR \$750,000.00 A YEAR.

It was also decided to ask for an annual appropriation of \$750,000, instead of \$400,000, as originally intended. This increase was advised by the Secretary of Agriculture, who gave as his reason that it would be economy to increase the number of veterinary inspectors by 150, on account of the great progress already made in the work, the number of counties in the various states now awaiting federal inspection, the number of counties that would apply during the year for federal inspection, and because the work can now go on the year round, owing to the fact that much of it is being done in the southern parts of the states where it is warm enough to dip cattle.

DUTIES OF VETERINARY INSPECTORS.

These inspectors are appointed upon civil service examination. They must be veterinary graduates and pass a satisfactory examination in veterinary science. Each man costs the government about \$2,500 a year, hence the increased amount asked for by the committee. The work of these inspectors is to supervise the building of dipping vats and show how the dipping is done. Then, when a county is said to be freed of ticks, the inspector must visit every farm and satisfy the government that the representations made by the state officials are correct. Upon his favorable report that county is released from quarantine. When a farm, or a county, is declared freed of ticks, it will be illegal for anyone to bring upon that farm, or into that county, any cattle from a quarantined or ticky county.

Obviously, this means co-operation upon the part of county officials and even individuals. This co-operation is easily obtained when the beneficial results of tick eradication are perceived.

TICK-BITTEN HIDES ALMOST WORTHLESS.

It has been claimed that tick-bitten hides depreciate 10 per cent in value because they do not make good leather, and that this loss

alone would pay for tick eradication. At the hearing before the senate committee the statement was made that the loss on hides alone was estimated at ten per cent.

At this statement a Northern senator said: "I deal in calf hides, and I never pay more than half as much for Southern calf hides as I do for Western and Northern hides. They don't make good leather." Here is a loss of fifty per cent, instead of ten per cent, and the department officials were surprised when we told them what this business senator had said.

We went before the senate committee with more misgivings than we did before the house committee; but events made us reverse our opinion of the United States senators. We were most kindly received. We were not hurried to the same extent as before that of the house. We all came away from the hearings encouraged. Each delegate made it his business to visit the members from his own state. We, of course, did not believe it possible that any representative of a Southern state would fail to vote favorably upon this important subject, but we wanted them fortified by a more intimate knowledge of the vast importance of tick eradication.

NOT MERELY A SOUTHERN PROBLEM.

After all, tick eradication is not strictly a Southern problem, it is a national problem. What affects fourteen states, affects the whole United States, and is, therefore, a national problem, and we were deterred from asking for millions instead of thousands, because it takes time to train men in the work. Tick eradication is merely a question of men and money. It is not an experiment. A state could be free of ticks in six months. We know what can be done, how long it takes to do it, and what the results will be. When once eradicated, the ticks are gone forever.

HOW COW TICKS DEPRECIATE VALUE OF FLORIDA CATTLE.

The 1910 agricultural census for Florida gives the following facts:

First. Cattle represent 45 per cent of the value of all live stock combined.

Second. In 1900 the cattle industry amounted to 56.8 per cent

of the value of all live stock combined, showing a decrease of 11.8 per cent.

Third. There are 845,188 head of cattle in the state, valued at \$9,262,262. The average price is less than \$11 per head.

Statistics show that three per cent of our cattle die from exposure every year in this mild climate. Many know these 2,500 head of cattle do not actually die from exposure, as that term is generally understood; but that the cause of death is the cow tick and lack of care.

Under our present conditions, Florida cattle have no market except in other quarantined areas of the South, and in the foreign tick-infested countries to the south of us.

As long as this condition exists, Florida cattle, no matter how high their breeding or quality, must be sold under quarantine or as quarantined animals. This means they are always sold for less than they would bring if sold as coming from a tick-free state.

WHY THEY SELL FOR LESS.

Cattle, irrespective of breeding or condition, shipped to Chicago from Florida, must be shipped for immediate slaughter, and are held, pending slaughter, in special pens, by the national quarantine officers. The cars they are shipped in must be disinfected of the ticks that drop off, in transit. They must be sold for immediate slaughter. They cannot be held and fed for a few days awaiting a favorable market.

This extra trouble and expense attending the marketing of Florida cattle, of all breeds, and conditions, is paid for from the proceeds of their sale and for this reason Florida cattle would bring from 1½ to 2 1-2 cents less per pound on the Chicago market, or any Northern Market, than similar cattle shipped from a tick-free state.

HIDES ARE WORTH LITTLE.

Even the hides of the Florida cattle are worth less per pound because a hide that is full of tick bites does not make good leather.

Therefore it is easily seen that cattle ticks exact heavy toll from this branch of our agriculture, by causing a large increase of the death rate by causing a sickness which brings about shrinkage in

size; by keeping people out of the cattle business, which could be made a paying one; by loss of the land fertilizing value of the animals that could be raised; by the loss in prices of meat products, in the price of hides, and many depressing influences upon farm life.

SEVERAL REASONS FOR ERADICATING CATTLE TICKS.

It is now recognized by all observing people that the cow tick is the principal cause of depression in the cattle industry of the South.

There is no other reason that is so apparent. The best cattle feeds that the world produces can be and are being grown right here in Florida. If our feeds were not of the best, other sections would not buy them.

FEWER ANIMAL PLAGUES IN FLORIDA.

All classes of animals, except cattle, do as well in Florida as in any other part of the United States. The difference is most marked when we consider the matter. In fact, there are fewer animal plagues in Florida than in most sections. There are very important diseases, which at times decimate the animal population in other section, that do not occur at all in Florida. When, however, we compare our cattle with those in the North and West, and even now in those sections of the South where the tick has been exterminated, it does not require the expert's eye to see the difference.

CATTLE VS. COTTON.

The eastward march of the cotton-boll weevil has forced the farmers in one state to grow other crops because they can no longer borrow money on a crop so uncertain as a weevil-infested cotton crop. The surplus of the crop is fed through cattle, and as these bring rich returns, the farmer has demonstrated to himself that cattle are a money crop and that the raising of cattle is worthy of his most serious attention. He soon realizes that he cannot produce the best cattle in the presence of the tick, because successful cattle production and marketing demand the eradication of the tick.

WASHED CLEAN OF TICKS.

The great overflow of the Mississippi River last year was not entirely without a useful object-lesson in tick-eradication in the State of Mississippi. Cow ticks cannot survive being submerged in water any more than can other air-breathing animals. Several counties were entirely submerged and the cattle were either drowned or removed to other sections. Here was an excellent chance to secure an immense tick free territory without further trouble or expense. Through co-operation and the enforcement of local quarantine, the flooded counties were not allowed to restock with any cattle that had not been cleaned of ticks by the dipping vat. The people of that section will now raise good cattle, and these may be sent to Northern markets to compete, on equal terms, with cattle from any other section.

WHEN THE COTTON-BOLL WEEVIL ARRIVES.

When the cotton-boll weevil arrives in Florida, our farmers will be forced into raising other crops. Some of these will be for cattle feed. The fertilizing value of these feeds will be returned to the soil by the cattle, as a by-product of the cattle business, and the commercial fertilizer bill will be materially reduced. It has been observed that fields upon which cattle have grazed shows the effect of this manuring for twenty-five years.

This improved farming cannot reach its highest development if the cattle are forced to give up their blood to ticks instead of converting it into flesh and milk.

THE DAIRYMAN'S DOUBLE LOSS.

The dairyman's loss from ticks is from two direct sources, viz: shrinkage in the milk output and deaths from Texas or tick fever.

When an animal has fever from any cause, milk production is either lessened or entirely suspended, according to the nature of the disease.

In acute Texas fever, the temperature runs very high, and the milk secretion is suspended. In chronic Texas fever, the kind we

see most of, milk secretion is diminished. The shrinkage in milk production of cattle heavily infested with ticks will, according to a government report average one quart a day. A dairyman can, therefore, easily figure out his loss in a year. Even if he lose one pint a day, he could figure up a bad case against the tick. Government experts figure up a loss in milk alone of nearly \$800,000 a year, in the whole South.

ANNUAL LOSS OF ABOUT \$8,500.00.

When a dairyman tries to improve his herd by the introduction of better milkers, he loses ten per cent of these imported cattle, even if they be immunized against Texas fever, and sixty per cent if they are not so immunized. Then you must take into consideration these cattle are usually high-priced, and, in some instances, a valuable strain of animal that cannot be replaced, dies, and this loss is also to be charged up to the tick. About 4,600 such cattle are brought South each year. If ten per cent die, and they cost anywhere from one hundred to one thousand per head the loss is from \$46,000 to \$460,000. The losses from deaths and shrinkage in milk production, therefore, cost the Southern dairyman about \$8,500.00. annually, a sum that would probably pay for the entire cost of tick eradication in the South, if the co-operation of those most affected could be quickly obtained.

METHODS FOUND EFFECTIVE IN EXTERMINATING CATTLE TICKS.

The extermination of this insect pest, is one of the easiest things imaginable if we go about it in the right way.

This insect, as well as all others, develops according to a natural law; hence, if we take advantage of our knowledge of the life-history of the cow tick nothing is simpler or easier than its extermination, by interrupting its life cycle. It is so easy and simple that a five year old child can eradicate the ticks, from the family cow, and the small-fenced pasture she grazes on, by daily picking off and killing every large tick for a period of six months. The explanation of this is, that it is only the big ticks, that lay eggs, and as they do not lay them until they voluntarily drop off the cow, picking them off by hand and destroying them by placing them in a can

of kerosene or any oil, will end their career. In other words, if no big ticks lay eggs there will be no young ticks to crawl upon the cattle. If there are no young ticks, there can certainly be no old ones. This method known as the hand-picking method, is, of course, only applicable where there are a few head, from one to a half dozen.

THE SPRAYING METHOD.

This method is applicable to herds of half a dozen or more. The standard arsenical solution is sprayed on the cattle by means of a coarse nozzle, one that will force the spray through the hair and on to the skin. A fine spray that merely leaves a sort of dew upon the hair, such as those required in spraying plants, will not do. The liquid must penetrate to the skin, and to accomplish this the spray must be directed against the hair. The animals must be thoroughly gone over so that every tick will be hit. Particular effort must be made to wet the under surface of the body, and especially the tail, as it is this member which affords ticks easy access to the body when the cow passes through vegetation harboring the young ticks.

The animal must be sprayed every two weeks, fourteen or fifteen times. A half-and-half mixture of cotton seed oil and kerosene makes an efficient spray. The arsenical solution is the cleanest to handle, but the fact that it is poisonous must not be lost sight of. However, there is no more danger attending its use than in the case of other arsenical sprays used on plants.

The arsenical spray is made on a small scale by dissolving four ounces of washing soda and one and one third ounces of white arsenic in five gallons of water by boiling fifteen minutes. Cool to 140 degrees (or to a point just a little too hot to bear) and add, in a fine stream, an ounce of pine tar, stirring so it will mix.

THE DIPPING VAT METHOD.

This is the method par excellence for destroying ticks as well as other vermin that may infest live stock, and is the method that the federal government recommends most highly, because it admits of a thoroughness that is impossible by any other method.

A dipping vat consists essentially of a two thousand gallon ce-

ment tank built into the ground and filled with an arsenical solution composed of white arsenic, eight pounds; washing soda, twenty-four pounds; pine tar, one gallon; to every five hundred gallons of water. The arsenic and soda are dissolved in thirty or forty gallons of water by boiling. The syrup-boiling kettle so commonly in use in Florida would be excellent for the purpose; but it should be carefully washed out after using for this purpose. After the solution has cooled to a point that is just too hot to bear, the tar is added in a fine stream and stirred thoroughly. Now put the solution into the tank and add enough water to make five hundred gallons. Repeat three times more, and you have two thousand gallons in the tank.

These vat tanks and other necessary arrangements for handling the cattle cost from thirty-five to one hundred dollars according to cost of labor and materials. Plans and specifications will be gladly furnished. The arsenic, soda and tar are also inexpensive materials. The infested animals are made to jump into the vat one at a time, and as the vat is too narrow for them to turn around, they are forced to swim out at the other end where their feet strike an incline and they walk out into a dripping pen to dry off. This is repeated every two weeks fourteen times. After each dipping the animals are again placed upon the pastures, where they, of course, become re-infested.

As the life of the seed-tick is limited to four months, unless it gets on a cow, horse or mule, it is readily seen that those seed ticks which failed in this have starved to death; while those that did get on cattle and develop have been destroyed in the dipping before the females could mature, drop off, and lay eggs. Hence, the farm and cattle so treated are ever after free of cow ticks, unless ticky cattle are introduced. In this case, the whole process would have to be repeated.

THE MEDICAL MAN AND TICK ERADICATION.

The present agitation for the eradication of the cattle tick has a special significance to the medical profession. Not only does the cow tick convey a blood parasite to the cattle it bites, but this para-

site has some points in similarity to the malarial organism in man, in that it is carried by an insect, and that it lives in the red blood corpuscles, destroying these, reducing, in some cases, the corpuscle count to 1,500,000.

Of special interest are the facts that this intra-corpuscular parasite, the *Pyrosoma bigeminum*, was discovered by a medical man, Theobald Smith, M. D. The life history of the cattle tick, its host, was discovered by a medical man, and the idea of tick eradication was first introduced by the same medical man, Cooper Curtis, M. D. It is, therefore, to these three discoveries that the final riddance from the cattle industry of the formidable disease produced by this parasite will be due.

One of the chief glories to be added to those already enumerated is the fact that the discovery by Dr. Theobald Smith that this *Pyrosoma bigeminum*, carried by the cattle tick, the cause of Texas fever, or southern cattle fever, or cattle malaria, was the first instance in the history of medicine, where it was proven by scientific investigation that a disease can be insect-born. This was truly an epoch in medical history.

It is also of special interest that the cow tick can be eradicated. It is being eradicated. No other disease-producing insects can be eradicated. They can be controlled.

Digressing, what a boon to humanity, could mosquitoes and hookworms be eradicated. Malaria, yellow fever and uncinariasis would cease for want of carriers, and a cause.

Finally, it appears to the writer that the eradication of the hookworm, which is sapping the vitality and manhood of millions, is not only not an impossibility, but that it could be carried out as successfully as is tick eradication.

The following companies quote prices on arsenic, sal-soda and pine tar, used in the preparation of the standard arsenic solution for dipping and spraying cattle to destroy ticks: F. O. B. point of shipment:

The following is a stenographic report of a hearing granted by the Senate Committee on Agriculture to delegates from ten tick-infested states to secure an increase to the appropriation for tick-eradication from \$250,000 to \$750,000 annually.

AGRICULTURAL APPROPRIATION BILL,
SOUTHERN CATTLE TICK ERADICATION.

Saturday, January 4, 1913.

Committee on Agriculture and Forestry, United States Senate, Washington, D. C.

The committee assembled at 10:30 o'clock a. m. for the purpose of hearing certain gentlemen on the eradication of the Southern cattle tick.

Present: Senators Burnham (chairman), Page, Crawford, Chamberlain, and Sanders.

The Chairman. Gentlemen, the committee will come to order. We have here several gentlemen from different States who are to be heard in relation to a matter that will come, perhaps, under the appropriation bill.

Dr. Cary, of Alabama, is perhaps informed in regard to the members present, and he may make his statement. I desire, Dr. Cary, that you and those who may make statements here, shall avoid, so far as possible, repetition of what has been said before the House committee, because the House committee has had those statements taken down, and they will be printed.

Dr. Cary. I have suggested to the men, Mr. Chairman, that each man confine his remarks to the important things he desires to say, and give his reasons why each State could use more help—more Federal help.

STATEMENT OF DR. C. A. CARY, STATE VETERINARIAN OF ALABAMA, AUBURN, ALA.

The Chairman. Will you please state definitely, in the first place, what the subject matter of this hearing is?

Dr. Cary. The subject matter is the question of eradicating the cattle tick that conveys the cause of disease, or is the cause of tick fever, and kills off a great many of the Southern cattle, and thereby induces the United States Government to quarantine all the infested area in the South, taking them off the world markets. That discriminates against Southern cattle, and puts them off the world's markets.

The Chairman. Dr. Cary, let me suggest for the record that you state what your official position is.

Dr. Cary. I am State Veterinarian of Alabama.

The Chairman. Give your full name.

Dr. Cary. Dr. C. A. Cary, of Auburn, Ala.; State Veterinarian, and chairman of the committee appointed by the Southern Agricultural Workers; that embraces the entire Southern infected area. This committee was appointed to take up this matter, especially before Congress.

The Chairman. Now you may proceed with your statement.

Dr. Cary. The general question is the eliminating of this disease from the South by getting rid of the carrier of the disease, the tick.

Senator Crawford. To what extent is it done?

Dr. Cary. Last year the Government appropriated \$250,000 for leadership in this work. The States have given as much, and some of them two or more times as much for the work.

Now, you ask why the different States come here and ask for Federal help. They come here simply for this reason: The Department of Agriculture, under the Bureau of Animal Industry, has quarantined the South, and in order to lift that quarantine these ticks must be destroyed, and the Government must know that, by having inspectors there to know when the ticks have been eradicated. Furthermore, these Government inspectors are men qualified and educated to carry on that work and direct and instruct the people.

Senator Chamberlain. Have the efforts of the Government and of the States diminished the big area affected by the tick?

Dr. Cary. About one-fourth. I stated yesterday one-third, but after seeing the chief of the Bureau yesterday he stated it was one-fourth; that one-fourth of the infested area has been cleared since we started the work.

Senator Crawford. And how much money have you been getting from the Federal Government for this work?

Dr. Cary. We got last year \$250,000.

Senator Crawford. For how large a territory—all over the South?

Dr. Cary. All over the South that was.

Senator Crawford. And you want more than that this time?

Dr. Cary. That is what we are here to ask for.

Senator Crawford. What is Alabama doing toward it? How much money has she raised for this work?

Dr. Cary. The State and the counties co-operated in this work—last year the State and counties gave about twice as much as was given by the Federal Department. I cannot give you the exact figures. We want in Alabama about ten or twelve more inspectors for the next year from the Government, in order to be leaders in this work. You understand that these men are to be the leaders and direct the work. I do not want to take more time, because there are other speakers.

Senator Chamberlain. Let me ask you one question, Doctor, before you leave. I have before me a map showing the affected area. There are about 500,000 square miles now affected?

Dr. Cary. About that.

Senator Chamberlain. How much was it when the Government undertook to assist the States?

Dr. Cary. There have been cleaned up something like 165,000 to 180,000 square miles.

Senator Chamberlain. Much or all of this territory was originally quarantined against?

Dr. Cary. Yes, sir.

Senator Chamberlain. As the area has been cleared up of the tick pest it has been released?

Dr. Cary. Yes, sir.

Senator Chamberlain. Released from quarantine?

Dr. Cary. Yes, sir.

Senator Chamberlain. And there is some other territory now within the affected area that is expected to be released soon?

Dr. Cary. Yes; expected to be released soon—to be released by the 1st of April, I think.

Senator Chamberlain. Has the effort to rid the country of the pest been quite effective?

Dr. Cary. As far as it has gone. So far as it has been applied it has been effective.

Senator Chamberlain. Is it possible to rid the tick from the whole territory?

Dr. Cary. There is no doubt about that.

The Chairman. How long has the Government been assisting in this work?

Dr. Cary. Dr. Dalrymple can answer that question.

Dr. Dalrymple. Since 1906.

Senator Crawford. How do you do this? Do you have dipping tanks?

Dr. Cary. It is done by using dipping vats.

Senator Crawford. Our State, at its own expense, built these dipping vats all over the State, and appropriates the money for their maintenance.

Dr. Cary. The counties and the States do a great deal of that; the counties in the State, in co-operation with the State. But you have a good many Federal men who are superintending that work.

Senator Crawford. Supervising it?

Dr. Cary. Yes, sir; that is what we want these fellows for. We have a much wider territory, in a sense, and a great deal more work to do than you have in the Northwest in your mange question.

The Chairman. This plague of the ticks, as you call them, has been continued how long?

Dr. Cary. In 1906 the Federal aid began.

The Chairman. Yes; the Government has assisted since that time, but how long has it been since the ticks were known to cause the disease?

Dr. Cary. It has been there for years and years, long before the Government found that the tick transmitted the cause of the disease. But for years and years we did not know what the cause of this Texas fever or tick fever was. We did not know it until about twenty years ago or a little over, when it was discovered at the Department of Agriculture.

The Chairman. You say now that it is lessening?

Dr. Cary. It is lessening; there is no question about that. It is no more an experimental work; it is an absolute fact that we can eliminate it; get rid of it.

The Chairman. Just what are the methods of eradication?

Dr. Cary. By the dipping vat largely. That is the most practicable method. There are other methods that are used, but that is the most practicable and efficient.

Senator Crawford. I presume it acts like this disease we have—the mange. It affects cattle if they are allowed to run down and get poor and lank and lean?

Dr. Cary. Only it is worse than that.

Senator Crawford. And good fat animals resist it; it does not harm them?

Dr. Cary. No, sir. It is different from that. The condition of the animal does not signify resistance. Some of the fattest animals are the quickest to die with the disease. But it does do this: It restrains the production of cattle in the South in that we cannot profitably grow beef or produce milk; neither

can we expect to handle new cattle for improvement of our cattle. It simply retards our cattle industry to such an extent, as compared with the North, that we are not in it.

The Chairman. What are the States especially affected with it?

Dr. Cary. Nearly all the Southern States. Virginia is nearly clean, and Tennessee is nearly clean, as you will see, but all the other infested States have quite a territory that is not tick free. North Carolina is about half clean.

Senator Chamberlain. Forty-three out of the fifty-one counties in Tennessee have been cleared?

Dr. Cary. Yes, sir.

Senator Page. What is the State worse affected?

Dr. Cary. Texas probably has the largest infested area. It is more extensive in Texas than in any other State.

Senator Page. Doctor, explain this, please: We have had for years ticks in Southern cattle. I am a hide dealer, and I know that we have had ticks in Southern cattle for some time. Is this something new, comparatively, or is it the same old disease, with greater force?

Dr. Cary. I am glad that you brought that out. I did not wish to be so long in discussing this matter, but I will say this in regard to that, that there is a discrimination against tick-marked hides—what is this discrimination in hides, Dr. Dalrymple?

Dr. Dalrymple. It is ten per cent.

Dr. Cary. Ten per cent. discrimination on hides that have been attacked by the cattle tick. So that injures the hide as a product of the South. The cattle tick has been in existence for years in the South. I do not know how long, but it is probable that this tick came in by way of Florida by the Spanish, or by way of Mexico by the Spanish. The Spanish brought it to America from Africa.

Senator Page. As I understand it, when a tick first imbeds itself in the hide of an animal it is not bigger than a pinhead, is it?

Dr. Cary. It is just a little seed tick.

Senator Page. Then it grows to be almost half the size of a nutmeg?

Dr. Cary. Yes, and all the time it is taking the blood from the animal.

Senator Page. And when it satiates itself it drops off.

Dr. Cary. Yes. They produce a large number of eggs; these eggs hatch and the process is repeated.

Senator Page. So that the whole surface of the animal underneath might be affected?

Dr. Cary. The whole body might be covered.

Dr. Dalrymple. It destroys the animal for all purposes.

Dr. Cary. Practically, that is it. And it does prohibit cattle production in the South.

The Chairman. You are now receiving \$250,000?

Dr. Cary. Yes, sir.

The Chairman. How much do you want to increase that amount?

Dr. Cary. We went to the Department of Agriculture before we went to the House committee, and in conjunction with the Bureau men, who know the Bureau side—the Federal side—we figured that with what we wanted this year in the respective States infested, 150 new men. The Bureau of Animal Industry figured that each man would cost about \$2,500, and that means about \$375,000.

The Chairman. In addition to the \$250,000?

Dr. Cary. In addition to what is now given. That looks big, but let me say that is not to be continuous, if we get it. This appropriation will stop when we get rid of the tick. This will allow the quarantine line to be removed. At the present time if tick-infested cattle are permitted to come into the northern area, the cattle there die off also with tick fever.

Senator Page. When the Southern cattle infected by the tick move into the Northern market they convey the fever, do they not?

Dr. Cary. They convey the tick, and the tick conveys the cause of tick fever.

Senator Page. The tick itself does not thrive in the Northern climate?

Dr. Cary. Yes, sir; in the summer time.

Senator Page. But it affects the Northern cattle?

Dr. Cary. Yes, sir. We cannot bring Northern cattle into the South because they die. We can hardly improve our cattle on that account. It is a very grave thing with us. It is a national question; it is not limited to the South. It is limited only to the United States, because it affects the entire United States. The United States must take care of this quarantine; they have to protect the cattle. The reason that induced them to put this quarantine upon the South was the Western range men who bought cattle in Texas carried them to Northern ranges and infected their pastures in the summer, and they lost great numbers of Western cattle. That is what induced the Government to put this quarantine on the South. It has hurt the South worse than it has the North, but it hurts the North as well.

Another point of interest right there: A few years ago Germany put an embargo on American meats largely on account of the tick fever. While it was absurd in a way, it was done for that purpose.

The Chairman. Doctor, is there anything further that you care to say?

Dr. Cary. I would like to have these men state, in a few words, their views of the subject.

The Chairman. If you will give us the names of the gentlemen you wish to call we will be glad to hear them. Whom will you call first?

Dr. Cary. I will call on Dr. W. H. Dalrymple, Professor of Veterinary Science and a member of the Board of Live Stock Commissioners of Louisiana.

Senator Chamberlain. Before you leave the stand, Dr. Cary, let me ask you this: What proportion of Alabama was at first infected by the cattle tick—all of it?

Dr. Cary. All of it.

Senator Chamberlain. How much now has been eliminated by quarantine?

Dr. Cary. We have been working in twelve counties, but there is only one county from which the tick has been eliminated. We lack educated help. However, we expect other counties to eliminate the pest next year. The sentiment is much more in favor of the work now. You have to educate the people to an appreciation of these things, because the people did not know why the tick injured the cattle.

Senator Page. Do you establish a quarantine as between those counties that you have recovered and the counties that are infected?

Dr. Cary. Yes; as soon as a county is free of ticks it is protected. We have to do it. If we did not do it the county would be re-infected.

The Chairman. Dr. Cary, if you have nothing more to say we shall be glad to hear Dr. Dalrymple.

Dr. Cary. I thank you very much, Mr. Chairman.

The Chairman. And we thank you, Dr. Cary.

STATEMENT OF DR. W. H. DALRYMPLE, PROFESSOR OF VETERINARY SCIENCE AND A MEMBER OF THE BOARD OF LIVE STOCK COMMISSIONERS OF LOUISIANA, BATON ROUGE, LA.

The Chairman. Dr. Dalrymple, please state your name, residence, and profession.

Dr. Dalrymple. W. H. Dalrymple; I have the chair of veterinary science in the Louisiana State University; my residence is Baton Rouge, La. I am also a member of our State Live Stock Sanitary Board. Mr. Chairman and members of the committee, I might say that I had the honor of appearing before the House committee six years ago, when the first appropriation was made for this work, and since that time, as you have just heard, something like 165,000 square miles of Southern territory have been reclaimed—that is, the tick has been eradicated from that territory, and which is now in what is called the free area. In other words, it is free just as much as any other section of the United States.

This quarantine that we have had put against us prohibits our cattle going to any of the large markets of the country, except for, I think, probably sixty days in the coldest months of the year, after they have been inspected by Federal inspectors and it has been seen that there are no ticks on them. Notwithstanding that fact they are placed in parts of the stock yards that are set aside for Southern cattle, which means ticky cattle, or cattle from the tick-infested area. They may have no ticks on them, they may be just as fine butcher stock as the Western man's animals, but they are discriminated against because they come from the infested area.

I think the estimate made by the Federal authorities is that something like 1,000,000 Southern cattle are marketed in the markets of the North annually, and the discrimination on account of the tick is from \$3.00 to \$5.00 a head. There is one item of three millions to five millions of dollars that the people of the South pay annually as a tribute to the cattle tick.

Speaking for my own State, after the Federal appropriation was made in 1906, Louisiana appropriated a small amount at that time, \$5,000 a year for two years for tick eradication. I might say that the conditions were that the money was not to do the work, the Federal money, but was to assist those who desired to help themselves, which is a very good basis, I think.

Our State appropriated \$5,000 a year for two years, making \$10,000 in two years, and that has been the amount that has been appropriated every year since. Of course we are away down below the quarantine line, if you will, and we started to work in two of our northern parishes. As you may remember, Louisiana is divided into parishes. Since then the work has been carried on in other parishes.

In my own parish, the East Baton Rouge parish, forty or fifty dipping vats have been put up entirely at the expense of the people themselves and given to the neighbors to use gratuitously. There are some other parishes that have done the same thing. The parish authorities have voted money for the building of the dipping vats in each ward of the parish.

There is one parish that I remember just now; we call it East Feliciana, where the police jury—that is the name of the local authority—voted enough money to build one dipping vat in each ward (there are eight wards), and

afterwards some stock men decided to put in half the money, which made sixteen dipping vats; and then it was decided by private vat owners that if the parish would pay for the materials, which are very cheap, and keep up the solution, that they would make them public dipping vats.

You see that the aggregate of the local money is quite considerable in addition to the State money. I could not give you the exact amount. We have only been working in two parishes, you might say, systematically, but the people themselves have been taking it up and doing it, and it is on their demand that we are requiring or requesting the additional Federal help to assist in that work.

We have one parish in which we took advantage of the recent disastrous overflow of the Mississippi River, just opposite Vicksburg. When the overflow came we decided that it would almost entirely eliminate the ticks from this overflowed district, and we took advantage of that and sent out information to the people to see if they would put on restrictions—the parish authorities—and not allow any cattle to come back into the overflowed parts without having been dipped at least once in the arsenical solution, a standard solution. Then, after they were dipped, they would bring the clean cattle back into a tick-free parish. And they did so. We were able to get some Federal assistance in the form of an inspector to help them along, direct the preparation of the dipping solution, and operation of the dipping vats; and possibly at the end of this next summer that parish will be cleared of ticks entirely, just by taking advantage of the overflowed condition of that area. So you will see that we are losing no opportunity locally to take advantage of every possibility that presents itself to enable us to overcome this menace.

Senator Crawford. Do I understand, then, that after you have dipped cattle and cleaned the ticks from the cattle that these ticks will have a habitat there in that neighborhood on other cattle, or these same cattle may be exposed again by staying in that infected region?

Dr. Dalrymple. The cattle tick is the only tick that we are concerned with, because it is the only one that carries the organism of Texas fever. Of course, it is a parasite, and it has to have its host to live on, or it would starve to death.

Senator Crawford. But if the animals have been put through this process, and the ticks have been killed, if they remain in that infected territory they will be infected over again?

Dr. Dalrymple. Yes, sir. Perhaps I should explain a little more about the method or process. We have found out that in our latitude the life history of the cattle tick is just about twenty-two days from the time the little seed tick gets on until all the changes in the life history of the tick takes place on the animal; and then the large female tick, which is engorged and is impregnated, drops to the ground to lay eggs. She will lay from 1,500 to 5,000 eggs at a laying. These, of course, hatch into little seed ticks. In some parts they dip every two weeks during the season. But in Louisiana and some of the other States that are under the direction of one of the Federal men, we dip every twenty-one days. That is just one day short of the time that the ticks drop off, so that we do not allow the ticks to mature and drop off. The animals gather the ticks, and every twenty-one days in some States and every fourteen in others they bring them to the vats and dip them.

We are satisfied that, with sufficient vats and sufficient help and co-opera-

tion of the people, we could clean the whole State in one season, practically, of the tick.

Senator Chamberlain. Your efforts have proven that you can absolutely clear a particular area of the tick?

Dr. Dalrymple. Absolutely. It was only last summer that we had a representative from the Australian Government, Dr. C. J. Pound, the Government Bacteriologist, and others looking into our methods. Its use means absolute tick destruction. It is the best, and by its use the tick can be stamped out.

Senator Chamberlain. What is the formula?

Dr. Dalrymple. The formula of the solution?

Senator Chamberlain. Yes.

Dr. Dalrymple. Simply white arsenic, sodium carbonate, or ordinary washing soda, and pine tar.

Senator Chamberlain. That is not very expensive, is it?

Dr. Dalrymple. Five dollars will fill a 1,500 gallon vat.

Senator Chamberlain. How many animals will you dip with that?

Dr. Dalrymple. They will run, perhaps, 300 or 400 head of animals through that solution, and then they will keep on re-enforcing it.

A Voice. It will cost about 25 cents to dip one for one season.

Dr. Dalrymple. And the vats. Somebody said yesterday that they will run from \$35 to \$75. Some of our farmers in Louisiana have paid as much as \$150 for their private tick vats, and they have told me that they would not take \$1,000 for them, when they considered what they had done in the way of eliminating the tick.

Speaking about hides, I have a letter in my possession from one of the large exporters in Louisiana. He said that if we could get rid of the tick that he could pay at least one cent per pound more for the hides.

Senator Page. The Southern hides run a little light, do they not?

Dr. Dalrymple. Yes. We have found that the solution is destroying the grubs in the backs of the cattle, and that is a tremendous thing from an economic point of view.

Senator Page. Those we have in the North. I am quite interested.

Dr. Dalrymple. We have them down our way, too.

Senator Crawford. What was that—destroyed what?

Dr. Dalrymple. The grubs.

Senator Page. The "warbles" is a common name.

Dr. Dalrymple. The great object of this work is to get an open market to the whole of the United States for our cattle. We are absolutely hemmed in; we cannot compete with our Western friends in the market. The South, with her magnificent opportunities for her cattle growing, etc., is prohibited from competing on account of this tick. We could grow cattle for the whole United States and have some for export, too.

Senator Page. You say you want more inspectors?

Dr. Dalrymple. Yes, sir.

Senator Page. Why? If you have the matter fully in hand and know just what to do, why do you need inspectors?

Dr. Dalrymple. The inspector, of course, is a man who is qualified to take charge of that work. The States expend their money, their share of the money. You remember the State at the beginning put up its share of the expense.

Senator Crawford. This money which you want us to furnish is largely to be used in pay for these inspectors?

Dr. Dalrymple. For the Department of Agriculture.

Senator Crawford. Where can we get inspectors to use up half a million dollars a year?

Dr. Dalrymple. There are lots of men in the civil service.

Senator Page. You want \$150,000?

Dr. Dalrymple. You are referring to money and I am referring to men. We want 150 more men in addition to what we have—Federal inspectors. The local money is expended under the direction of these Federal men in the building of dipping vats, etc. The government does not build any of these vats down there, but they superintend and show the people how to put them up to the best advantage. In the early days we had to work and educate the people against very crass ignorance, as you may imagine. We have had to educate them in regard to the new methods. People have lived all their lives under tick conditions. They have never seen anything to compare them with what would be tick freedom. The importance of this work cannot be overestimated. I know one case, and it was made the subject of an illustration by the Government people. It is a very good one. It is that of a common Mississippi steer which weighed 730 pounds before it was dipped. After dipping two or three or four times in just exactly sixty days that animal weighed 1,015, or 285 pounds gain on the same food in sixty days.

I figured with one of our butchers and asked him: "What would you give before it was dipped?" He said: "I wouldn't give anything; it wouldn't suit me." I said: "Put a price on it." He said: "I wouldn't pay more than 2½ cents a pound." I said: "What would you give for the same steer after sixty days?" He said: "I can give you at least 3½ cents a pound."

There was not only an increase in the weight of the steer, but in the price per pound. The fact is that the steer gained \$17.28 in sixty days just by getting the ticks off the feed bill, really.

Instead of the ticks sucking the blood and getting the benefit of it, the animal is getting the benefit of that blood that the tick got.

Senator Page. Does this tick prove fatal to some animals?

Dr. Dalrymple. Oh, yes; by depletion of the blood. Our Southern cattle are immune to the fever, but the depletion of the blood kills or impairs them. I think it has been ascertained that an animal will sometimes lose as much as 200 pounds of blood in a season from the tick, and it prevents fattening. It reduces the milk supply at least 10 per cent. In fact, tick eradication is the basis of our agricultural prosperity, and in that, as Dr. Cary has said, it is not a sectional question.

Senator Page. We get a great many thousand skins from the South that are taken off animals about a year old that are poor in the center, and the tick has done from 10 to 50 per cent. of damage to the hide.

Dr. Dalrymple. You get an irregularity in the hide?

Senator Page. The tick lays itself in the grain of the hide, but when the hide is tanned it shows through to the finished side—to the flesh side of the skin.

Dr. Dalrymple. Yes, sir.

Senator Page. And on your live stock it does a great damage, much more than you have stated?

Dr. Dalrymple. Yes; there is no doubt about that. And so it is we say,

simply to get rid of this barrier, if you will, so that we can bring the animals from the North to improve our stock, and then have the markets of the world open to us when we ship. I thank you.

The Chairman. Whom do you wish to call next?

Dr. Cary. The next will be Dr. George R. White, State Veterinarian of Tennessee.

STATEMENT OF DR. GEORGE R. WHITE, STATE LIVE STOCK INSPECTOR,
NASHVILLE, TENN.

Dr. White. Mr. Chairman and gentlemen of the committee, I am not going to take more than two minutes of your time. I just want to show the result that we have obtained in Tennessee through this tick eradication work.

Tick eradication started in Tennessee about seven or eight years ago. At that time we had fifty-one counties out of ninety-six counties quarantined on account of this parasite. That work has been conducted by the counties and the State in co-operation with the Federal Government, and at this time we have succeeded in eradicating ticks, as you will see from the green, in forty-three counties on this map here.

Senator Crawford. The green represents the localities where they have been eradicated?

Dr. White. Where they have been eradicated. The white represents the counties where no tick fever ever appeared, and the black represents the present quarantined area.

That means that after six or seven years' work we have succeeded in eradicating ticks in our State down to about seven counties.

The Chairman. When you began the work did the ticks extend all over the State?

Dr. White. Not in those white counties.

Senator Crawford. But in the blue or green?

Dr. White. Yes, sir. But if ticks can be eradicated in forty-three counties in Tennessee they can unquestionably be eradicated in those other seven counties, and if they can be eradicated in the whole State of Tennessee they can be eradicated in Florida, Georgia, and all the other tick-infested States.

Senator Page. How do you account for the absence of the ticks in the white counties on your map?

Dr. White. It had not time to spread that far north. The disease was gradually going farther and farther north each and every year.

Senator Crawford. You did all that in Tennessee without very much help from the Federal Government, did you not?

Dr. White. We received more Federal aid there than any other State, because this Federal Government aid was furnished those States on the northern border to a greater extent than it was to these southern States. If those people would receive as much Federal aid as Tennessee has received, ticks could be eradicated in Georgia, Alabama, Florida, and most of these other States in three or four more years. There is nothing experimental in tick eradication. It has been demonstrated as a fact, as this map will show to any thinking man. It simply resolves itself into a question of men and money.

Senator Chamberlain. In those forty-three counties in Tennessee from which you have eradicated the tick, have they had the quarantine released?

Dr. White. They have been released from quarantine.

Senator Chamberlain. So that the cattle from them, formerly infected, can go into the Northern markets?

Dr. White. Go anywhere without any quarantine restrictions. This tick will probably be eradicated finally, even with the small expenditure now made on the part of the Federal Government, but at that rate of appropriation it will be fifteen or twenty years before these ticks will be eradicated from these Southern States.

Our idea is to have you gentlemen consider the advisability of increasing this appropriation so that this work can be done in five or six or seven years, in place of letting it run along for fifteen or twenty years or twenty-five years, because when the ticks are finally eradicated from those States the Federal appropriation for this work will, of course, cease. It is not a continuous proposition, by any means.

I thank you very much.

The Chairman. Whom will you call next, Dr. Cary?

Dr. Cary. Dr. Peter F. Bahnsen, State Veterinarian of Georgia.

STATEMENT OF DR. PETER F. BAHNSEN, STATE VETERINARIAN OF GEORGIA,
OF ATLANTA, GA.

Dr. Bahnsen. Mr. Chairman and gentlemen, in regard to tick eradication there are a few points that have already been discussed that I would like to further elucidate.

A tick infested area is not absolutely covered with ticks. There are certain areas within the tick infested areas that are free from ticks, but the people in that free area, in those free districts, get no benefit from the fact that they are free of this parasite. Their cattle are restricted from the markets, just as much so as cattle from the infected areas—that is, from infected premises. Nor can they be shipped under any conditions. The Federal Government would not supervise an inspection from tick-free premises within a tick infested area, in order that they be relieved from quarantine and put on an equal footing with the cattle from the North.

Nor can the State authorities make this inspection and certify to it. That must be done by the Federal Government. The State is not recognized along those lines. It is absolutely essential if this work of tick eradication is to progress, as it should progress, that the Federal Government make a liberal appropriation in order to supervise or rather to investigate and then release from quarantine such territory as is free of this pest. Of course, so far as the work in a tick infested area or a tick infested premise is concerned, that is mostly done by the State. Very little of the money given by the Federal Government goes to do any of the actual field work, except supervision. Of course, they have to supervise it.

If we do free a county we cannot release it from quarantine; that would not be in our power at all. The Federal Government has to have a man on the job who will look into this matter, and it is only his word that finally releases the county from quarantine.

Senator Chamberlain. Even before efforts were made to eradicate the tick the Government was at enormous expense to quarantine the North against the South.

Dr. Bahnsen. It was at the request of the North that the Southern cattle were quarantined.

Senator Chamberlain. I say it was a large expense on that account.

Dr. Bahnsen. Yes, sir.

Senator Chamberlain. That will be gradually eliminated when the tick is eliminated?

Dr. Bahnsen. When the tick is eliminated that will be absolutely eliminated; all expense for quarantine against the cattle tick. There will be no further expense. In other words, it is the only appropriation that is called for right now that we can say with absolute certainty will, within a fixed number of years, according to the amount of money and the number of men we will have to do this work, be completed, and when it is done it will always remain done.

Since the work was taken up by the Government in 1906 not a single county that has been released from quarantine has been placed back under quarantine.

We know that just across the imaginary border between a tick infested county and a free county they are not free from ticks on one side and heavily infested on the other; we know that is not reasonable. But infestation is there, and we know that people will violate the quarantine restrictions and cross over into the free and released area; but when they do so they take a great deal of precaution to see that they do not carry ticks. Records for the past six years show absolutely that once the work is completed there is no danger of reinfestation again.

The line has moved progressively to the south, and not a county has been placed back in quarantine after being released from quarantine.

In regard to the State aid, the States—at least those that I am familiar with—have all done more than their share of work, so far as the educational feature of it is concerned, and the expenditures of money. They have built most of the dipping vats and done most of the cattle farm-to-farm inspection. That has always been done by the State and counties, although the Federal Government has to have a hand in it in order to be able to release the territory from quarantine. They have to have a part in it. The counties provide money and the States provide money; some States more, some States less. Last year the State of Georgia gave \$15,000. That was the first liberal appropriation that was given by the State for the work of tick eradication. We fully expect to get a larger appropriation. In addition, the counties have always appropriated very liberally where we have gone into the matter with them.

Another point that has already been brought out that I should like to emphasize is the one raised by Senator Crawford, who asked if cattle were once infected if they might not become reinfected. One disinfection or two disinfections will not free any premises from ticks. You have to disinfect cattle regularly at an interval not exceeding three weeks; that is the very limit. It is much better to disinfect every fourteen days; and from ten to fifteen or sixteen disinfections beginning April 1 of any year will absolutely eradicate the tick from any premises or from any county or from any State, provided the work is done regularly and thoroughly. That is all there is to tick eradication.

So we know that we can finish this work in a few years; we know we can do it, because we have had the experience in the matter, and we know that we are doing it right along. The only time that we have ever had any trouble is when, for some reason, an individual either fails to disinfect them regularly or fails to do it thoroughly.

Senator Crawford. Do you find a good deal of prejudice among people against doing anything of that sort?

Dr. Bahnsen. Yes. It is so in every work of advancement. There is no work of advancement that does not meet with opposition.

Senator Crawford. They think you are interfering with their personal privilege?

Dr. Bahnsen. That is right. That is often so when you begin to talk to a man about raising 40 bushels of corn instead of 14. He will tell you, "You are a fool, and you cannot do it." At the same time, when you demonstrate it to him you would think that he would believe that you could.

Senator Chamberlain. Are your States passing any laws compelling this eradication?

Dr. Bahnsen. Yes, sir; we have a law enforcing disinfection and making a violation of that law a misdemeanor.

Senator Chamberlain. That is very essential, I should think.

Dr. Bahnsen. Yes, sir. In fact, we could not make any headway at all without it.

I thank you.

The Chairman. Who is your next speaker, Dr. Cary?

Dr. Cary. The next will be Dr. R. F. Kolb.

STATEMENT OF DR. R. F. KOLB, COMMISSIONER OF AGRICULTURE OF ALABAMA, MONTGOMERY, ALA.

The Chairman. Dr. Kolb, you are Commissioner of Agriculture?

Dr. Kolb. Commissioner of Agriculture in Alabama; yes, sir.

The Chairman. And have been for a good many years?

Dr. Kolb. Well, I have only been now for two years. I was commissioner and held the same office over twenty years ago, but I retired and am one of the "comebacks."

Mr. Chairman and members of the committee, I am very glad indeed that you had an opportunity of hearing the gentlemen who have preceded me, because I want to assure you that they are experts, educated veterinarians, and know what they are talking about, and I can only endorse what they have said and emphasize the needs of the South and for the United States Government to aid us with more men and money. That is what we need. We are not asking for this money for ourselves, or to distribute it ourselves, but for the United States Department of Agriculture to take charge of it, of course, and by putting more men in the field, which requires a larger appropriation, in order to have a sufficient number of them to do this work, to educate our people along this line, and to absolutely, as you have been told, eradicate the tick in a very short time—within a few years.

Now I know that in my State alone—and the National Department of Agriculture verifies it—we lose annually in Alabama over \$5,000,000 by this tick in the loss of cattle and have been doing it annually for two years, and it is increasing every year.

The United States Government ought to come to our assistance and stop this thing. We are doing all we can in the various States. While our State of Alabama has not made any direct appropriation for this special work, our counties have. We are probably giving two or three or four times as much—the counties are—than the United States Government has given; at least \$25,000 to \$30,000 to \$40,000 in the various counties. But I want to call your attention

to the fact that Alabama, through her legislature and through her appropriations, is giving more money today in the interest of the approved methods of agriculture than any State in the Union, excepting none—South, North, East or West. We give \$25,000 annually now, for the moneys are all paid out of the funds of my department—and I know what I am talking about—for this farm demonstration work that we carry on jointly with the State and the Department of Agriculture here. We pay three-fifths of the salaries of these demonstrators. We have one in every county of the State of Alabama. We pay every month three-fifths of the salaries of these demonstrators, while the Government only pays two-fifths. Then in soil survey work, we are doing still more than any other State in the Union. We are carrying on this soil survey and will soon have—in a few more years—every county in the State surveyed.

We have now got about two-thirds of the State surveyed. Alabama appropriates \$10,000 annually for that purpose, and these soil surveyors are employed by the Commissioner of Agriculture of my State to co-operate in that work with the soil surveyors of the United States Department of Agriculture. We have four and they have four carrying on this work in every county in Alabama.

Mr. Chairman, I do not know anything that I can say that will aid you in coming to a just conclusion in this matter, except to emphasize what these experts have told you. They know what they are talking about, because they are educated in that line of work.

I thank you, gentlemen.

STATEMENT OF PROF. ARCHIBALD SMITH, PROFESSOR OF ANIMAL INDUSTRY OF THE AGRICULTURAL COLLEGE AND SECRETARY OF THE STATE LIVE-STOCK SANITARY BOARD OF MISSISSIPPI, STARKSVILLE, MISS.

The Chairman. Just state your position, please.

Professor Smith. I have the chair of animal industry at the State Agricultural College and am secretary of the State Live-stock Sanitary Board.

Mr. Chairman and gentlemen of the committee, when the first Federal appropriation was made for this work the State of Mississippi was far below the quarantine line, and, we having no State laws that would enable us to work there was nothing done in this line until 1908. At that time the State made an appropriation of \$5,000 for two years' work, and as a result of our work during those two years they made an appropriation of \$40,000 to carry on this work. Now, as a result of our work since beginning, we have eight counties cleaned and above the quarantine line and an area about equal to the size of eight counties now ready to be released.

Gentlemen, we are in a peculiar condition in that State, different from some of the others in that it is naturally a great stock-raising State. There is no State that has a greater variety of grasses and feed suitable for economic stock production, while as you know, cotton is the one great cash crop of the State, and of the South. During these last two or three years what is known as the cotton boll weevil has been sweeping over the State, and that has made it absolutely necessary for these farmers to change their system of agriculture; they have got to adopt other methods. The farm demonstration work through the Department of Agriculture and the State departments are urging these farmers to grow other crops and to go into live-stock raising.

Gentlemen, in order to utilize these other crops when we get them grown

we must necessarily have cattle and other stock, and we have got to create the conditions that will enable these people to breed and feed cattle successfully. The boll weevil has had the effect of reducing land values seriously and reducing the revenue of the farmers. When you advise those people to go into cattle raising they say, "Where am I going to get them?" I can get the common cattle, the scrub cattle of the district, but there is not much money in handling them. We cannot go out into the free areas of the country and buy good cattle and ship them here because the risk of losing them is so great."

This last year the Live-stock Sanitary Board, in co-operation with the Federal bureau, has had men working in about 22 counties. That is all the money we had available. We have about 30 counties in the State—that is, the Boards of Supervisors of 30 counties are willing to appropriate funds to employ county inspectors to visit these farms and see that they are disinfected if the Federal bureau in the State could provide men to supervise their work and report to the Federal department when it is cleaned. No matter how much money the State and county might appropriate the area cannot be released until the Federal department is satisfied through the reports from their own men that the area is free. We cannot make progress any faster than the Federal department is able to supply competent inspectors to supervise their work.

During these past two years we have had over 3,000 dipping vats built within the State at an average cost of about \$35 each, and during this last year the counties of the State alone have appropriated about \$50,000 for inspectors. That will give you some idea of the interest on the part of the people.

Senator Chamberlain. The people there are pretty nearly driven to stock raising in view of the existence of the boll weevil, are they not?

Prof. Smith. They are being forced to it, and we are doing our best to bring about a condition that will enable them to carry it on profitably. It is a very serious matter for those people. We have many farmers who come down from the North to purchase land, especially in the prairie counties. We are about ready to release half of them. The black land underlaid with lime rock is attractive to these northern farmers. The land was cheap, and they have bought large areas of it. But they are not familiar with growing cotton, and the cattle tick there prevented them from handling their cattle properly that they took down with them, and as a result many of these people have failed to realize on their money as a result of this condition. We are trying to create a condition there that will enable those people to go down there and farm just as they would farm at home. They can grow the same crops, and if we can give them an opportunity to raise cattle as successfully there as at home there is no reason why they should not find that land very profitable. The State is appropriating very liberally; every county is appropriating, liberally. The counties furnish the services of from four to five men for each county for the one man that the Federal bureau furnishes, and we are asking for at least thirty new men in Mississippi next year, in order to give relief to those people who are so desperately in need of it. We are doing our utmost not only to free the boll-weevil-infested area from ticks, but to free the other areas from ticks as rapidly as the weevil infests it, so that these people can change their methods of farming and prevent this enormous reduction in land values and the revenue of the owners.

I thank you, gentlemen.

Dr. Cary. Now gentlemen, we will call on a man from the State of Florida, a State that has not taken up the work but wants to take it up. I introduce Dr. Dawson.

STATEMENT OF DR. C. F. DAWSON, VETERINARIAN OF THE STATE BOARD OF HEALTH OF FLORIDA, JACKSONVILLE, FLA.

Dr. Dawson. Gentlemen of the committee, as Dr. Cary has just said, I come from a State which has not yet done anything in the line of tick eradication, but we are very much interested in the subject and expect to take it up soon. I have no doubt that the State Board of Health will take from its funds an amount equal to that of the other States which have started the work. I do not think it well to ask for too much money from the State legislature or from the Board until we get in a position to use it profitably. We have to know how to handle the money before we can handle it judiciously.

We have in Florida about 850,000 animals. Most of them are known as scrub animals because they have been raised under Florida conditions, and that means under conditions which the tick produces. There is no section in Florida which is not infested with ticks. Some of our Southern States have sections, as we have already been told, where there never have been ticks. But I think in our State ticks are prevalent everywhere. We lose every year, according to the census—and I believe the report is not as heavy as it ought to be—3 per cent. That would cause us a loss of \$25,000 worth of cattle every year from what is known as exposure. It is difficult to understand how an animal would die from exposure in a climate like Florida, but we must remember that exposure means tick infestation, and that is all it does mean. If we could free Florida from ticks, we would start up practically in that country a new industry. While there are men there who have made money in the cattle business, they have made it at random, owning cattle by the thousands and not knowing much about it, and never seeing them except when they are driven up to be sold. But those people are few and far between. We want it so that everybody can raise cattle in that State profitably, but we cannot do it so long as this tick is there to put a damper on it.

The best way to do is to form in every county cattle improvement clubs—not bringing the tick to the surface as being the one object for its existence there—clubs that are called "cattle improvement clubs," and having tick eradication as one of the things for which the club would work. They would meet annually at Jacksonville, or some other place, having a delegate from each one of the counties, and in that way we expect to carry on the educational side of the work. We are not expecting to jump in and eradicate in any great amount of territory in Florida suddenly. It has got to be an educational campaign. We have got to provide for this work men who can reach all the small owners of cattle, because in a country of that kind they live far away from railroads and are hard to reach and we have to pick out a certain class of men who have influence with that particular kind of person. I have an idea that our State could claim the distinction of being the point at which the cattle tick first arrived in America. St. Augustine being the oldest settlement, it may be that we are responsible in a way.

Senator Crawford. You are not claiming that as any great honor?

Dr. Dawson. No, sir; just merely a distinction. I believe that is all I have to say. Of course, I have no particular or practical knowledge of the real subject of dipping cattle. It is all very simple, though. All that

these gentlemen have told you is absolute truth. The tick can be eradicated or destroyed and the Texas fever can be stamped out, and it is the only one that can be stamped out in that way. The peculiar life history of the tick makes it possible, and if you eradicate the life principle of the tick you then exterminate it. It is the only insect in the world that can be exterminated, in my opinion. It may be interesting to know, with regard to this cattle tick, that the discovery of the tick carrying this germ of the Texas fever was the first instance in the history of medicine, where it was shown that diseases are insect-borne. Since that time we have discovered that malaria is carried by mosquitoes, and that yellow fever is carried by mosquitoes. This particular tick is the only one that carries this particular parasite that causes disease in cattle greatly resembling malaria in man.

Senator Chamberlain. There is one thing in the West more deadly than the tick, and that is the spotted fever in Montana.

Dr. Dawson. That is all I care to say, gentlemen.

STATEMENT OF W. G. CHRISMAN, STATE VETERINARIAN OF NORTH CAROLINA, RALEIGH, N. C.

Dr. Chrisman. Gentlemen, I have this morning a map of North Carolina indicating what has been done in tick eradication in that State. When the work was first taken up by the United States Government in 1906 the entire State of North Carolina, with the exception of a few counties on the western border, were tick infested. The entire State was tick infested. Beginning in 1906, with the aid of the bureau, we began in the western part of our State, at the top of the Blue Ridge Mountains, with a force in eradicating ticks. We have worked consistently in that State and are now pushing our line eastward year after year, taking in a tier of counties clear across the State from north to south. From that day to this we have been able to eradicate the ticks from the western part of the State moving eastward down to where you see this black line (indicating) and are now crossing the State from Roanoke River on the north to the Pee Dee River on the south. That is a clear demonstration of the fact that we can eradicate ticks by persistent and regular methods. The method used in North Carolina is a little bit different from that in some of the other States. We have not used the dipping vat, because conditions do not, as we think, warrant our doing it. We have had our inspector in the field, and have been spraying the cattle with spray pumps, and think for our particular conditions those are the best methods. Now, what we are going to do in the future depends on conditions as we find them when we get to them—whether we shall continue in the use of the spray pumps or adopt the dipping vats. From here (indicating) it is all tick infested and has always been since our country has been infested with ticks.

As the gentleman who proceeded me said, our ticks came into Florida and they worked northward. The reason they have not gone further into the Northern States is because they were stopped when they reached this point; taking in Virginia, which is north of us; from there on, the northern boundary of the coast, and all the Coast States, have been infested by these ticks and we have worked persistently in eradicating them; and just one glance at this little map will indicate that we can eradicate ticks successfully.

The question now comes down to one of means to continue our work and to eradicate the tick from the territory that still remains infested. The question is now one of money and men to do the work with. We are asking you

gentlemen to give us a larger appropriation for this work, because the States themselves cannot eradicate the ticks without your assistance. As Dr. Bahnsen has said, no matter how well we have cleaned our territory, and although we may be ready for release, we cannot ourselves release that territory until the bureau inspectors have been there and been over the field and seen conditions themselves, and these reports must come in from your men before the bureau can release this territory.

Now we are asking for more men to supervise the work. These States and counties have appropriated money to do the work, but they want the Federal men to supervise this work. We figure that in North Carolina it will take five additional men next year to provide for the work in the counties that we expect to work, and the other States have each given the estimate that that many men will be necessary in those States. We are working with a force of men throughout the year doing this work. Heretofore in Virginia and Tennessee, the winters have been especially cold, so much so that they would kill ticks themselves and it was not necessary for us to keep our men in the field the entire year; but now practically all this colder territory has been released from quarantine. We are working now down in the southern and eastern sections of those States where all the winters are so mild that these ticks will live the entire year. Nature is not taking care of us. Now we have to take care of ourselves, and we have to put men and money into the proposition to work the entire year. Therefore, it becomes more expensive and more costly to do that work now than at first, and now we have more territory ready to work than we had when our first appropriation was given us, about seven years ago, when the committee came up before you gentlemen asking for this appropriation.

That is why we are here today asking for a larger appropriation, because the needs of the work are very much larger than they have been in the past. The territory is ready. We have the territory ready right now for work, and we are simply asking for men and for money in order that we may continue—money on your part to give us the Federal aid that we should have.

The map of the United States on the desk will show the territory that was affected at first, where the first quarantine line was established by the bureau. It also indicates the amount of territory that has been released, and it also states and shows what is yet in quarantine.

Gentlemen, I thank you.

STATEMENT OF J. F. STAMFORD, FAYETTEVILLE, ARK., STATE VETERINARIAN.

Dr. Stamford. Gentlemen, I merely wish to state that at the beginning of this work of tick eradication, six years ago, every county within the State of Arkansas was quarantined by the National Government. At present we have fourteen counties which have been released from the National quarantine by the United States Bureau of Animal Industry. This has been done through the work of tick eradication. We have an area which composes these counties that represent something like 11,003 square miles. I desire to show you the interest that our people have taken in this work, to say that during the last year, and during only six months of last year, 1,161 square miles of this total free area was free through the aid of our own people from

private contributions. Our State legislature will meet this month, and that body of men will look well to the interest of the agriculture of the State of Arkansas along the line of tick eradication, for the people of our own State are demanding that we take up the work, and we will have to have the number of Federal men increased in order to take care of the work that we will be forced to take up during the coming years. We estimate that it will take at least eight more men from the Bureau of Animal Industry in order to supervise this work of tick eradication that will be taken up in the coming years—the coming “tick eradication” years which will start in the early days of spring.

FINAL STATEMENT OF DR. C. A. CARY.

Dr. Cary. Now gentlemen, I simply desire to say a word in closing, which will occupy but a minute or two. We have practically four States not represented: Texas, the largest and most extensively infested; Oklahoma, South Carolina, and there is one county in Missouri. Texas demands, and should have, more men than any other State. I am sorry they have not a man here to represent it.

Senator Chamberlain. Are they interested in the subject.

Dr. Cary. Yes, sir; they have a call for at least 20 more men. Oklahoma has a call in for 20 more men. As I stated in the beginning, after getting a summary of all the other wants of the different States infested, they are calling for 150 new men from the Department of Agriculture to supervise this work. Now this means, if we can get it, that the work will progress more rapidly in the coming years than ever before, simply because we have now about 75,000 miles of territory that we are working in that will nearly all be practically cleaned up this year, if we get sufficient Federal aid. The people are ready and want the work to go on in this area. That is just one-half as much as was cleaned in the last six years. If we do not get the money and leadership it will simply mean that this work will drag over a long period of years and in the end cost just as much or more to the States, the Government, and the counties interested.

The Chairman. If you secured this large appropriation would not the Government have difficulty in finding competent inspectors?

Dr. Cary. No, sir; I think not.

Senator Crawford. That is what is in my mind. Where are we going to get an army of veterinarians who will eat up half a million dollars?

Dr. Cary. From 150 to 175 men will cover it, and there will be no trouble to get men who are skilled.

Senator Chamberlain. Does it require veterinarians?

Senator Crawford. Oh, yes.

Dr. Cary. That is what we require—graduated veterinarians. There will be no difficulty in finding them.

Senator Sanders. Mr. Chairman, as I understand it, the other departments or other divisions of the Agricultural Department have men that they can draw on for that use.

The Chairman. Very likely.

Senator Sanders. I am told they have.

The Chairman. Is there anything further Doctor, that you desire to say?

Dr. Cary. Not unless there are some questions. We desire to thank you, gentlemen, for your kind favor in giving us this hearing.

The Chairman. I wish to state to you, Dr. Cary, and you, gentlemen, that we fully appreciate the importance of this matter, and when the bill comes from the House, as it will in a few days, I hope, the committee here and the Senate, of course, will give careful consideration to what has been said, and we are obliged to you for the information you have given us.

The Committee thereupon adjourned.

CONSTRUCTION OF A DIPPING VAT.

DIRECTIONS FOR CONSTRUCTING A VAT AND DIPPING CATTLE TO DESTROY TICKS.

(From Circular No. 183, Bureau of Animal Industry. By Graybill and Ellenberger.)

ARSENICAL DIPS.

Arsenical dips as agents for destroying cattle ticks have come into much favor during the past few years. This has been due to their efficacy, cheapness, the ease with which they are prepared, and the comparatively slight injury they cause to cattle when properly prepared and used. Homemade dips are the ones most commonly used and are quite satisfactory in every way when ordinary care is used in their preparation. Recently there has been placed on the market a proprietary concentrated arsenical dip which has given good results. This dip is prepared for use by diluting it with cold water in the proportions of 1 to 100. The only advantage in such a dip is that comparatively little time is required in preparing the bath, but this advantage is largely counterbalanced by the fact that it is more expensive than a homemade dip.

PREPARATION AND USE OF ARSENICAL DIPS.

The formula most commonly used in making an arsenical dip is the following:

Sodium carbonate (sal soda).....pounds..	24
Arsenic trioxid (white arsenic)-----do-----	8
Pine tar.....gallon..	1
Water sufficient to make 500 gallons.	

If for any reason a stronger dip is desired, 25 pounds of sodium carbonate and 10 pounds of arsenic trioxid may be used in place of the amounts given in the above formula. The stronger dip is required by the regulations of the Bureau of Animal Industry in the

dipping of cattle which are to enter interstate commerce from quarantined areas, but for ordinary eradication work when immediate removal of the cattle to tick-free areas is not contemplated it will probably be best to use the weaker solution, and this is especially true during hot weather and when the animals are to be treated every two weeks.

In preparing the dip a large caldron or galvanized tank is required for heating the water in which to dissolve the chemicals. Thirty or forty gallons of water should be placed in the caldron or tank and brought to a boil. The amount of sodium carbonate indicated in the formula is then added and dissolved by stirring. When this is accomplished, the required amount of arsenic is added and dissolved in a similar manner. The fire is then drawn, and the solution permitted to cool to 140 degrees F., or this process may be hastened by the addition of cold water. The pine tar is then added slowly in a thin stream and thoroughly mixed with the solution by constant stirring. This solution is diluted to 500 gallons before using.

If a larger caldron or tank is available for preparing the dip, a greater quantity of solution may be prepared at one time, always, of course, in the same proportion as the above. In this way the time required in preparing the amount of solution necessary to fill a vat is reduced considerably. In case it is necessary to use a smaller container, say of about the capacity of 25 gallons, only half the amount of solution indicated should be prepared at one time, the quantities of ingredients used being half those in the formula. This will, however, require so much time in preparing the amount of solution necessary to fill a vat that when possible it is advisable to provide a larger vessel for dissolving the chemicals.

The caldron or tank and utensils used in preparing the dip should be kept free from grease or oil, as small quantities of these may envelope particles of arsenic and prevent or hinder the solution of the arsenic. It should also be borne in mind that when hard water is used in the preparation of the dip the dissolving of the sodium carbonate (sal soda) in the boiling water results in the formation of a fine white or gray insoluble powder or precipitate of lime salts which may be taken for undissolved arsenic, and thus lead to the belief that all the arsenic has not gone into solution.

The arsenical solution may be poured into the vat as rapidly as

it is prepared until the amount required to fill the vat, when properly diluted, has been made. The most convenient way of diluting the solution is to run the water into the vat through a hose or pipe. The capacity of the vat at the depth to which it is necessary to fill it for dipping, if not known, should be calculated, and for future convenience the water line should be plainly marked at some point on the wall of the vat. After the exact amount of solution necessary to furnish diluted dip to fill the vat has been prepared and placed in the vat all that is necessary is to allow water to flow into the vat until the surface of the dip reaches the mark made on the side of the vat. For example, if the capacity of the vat is 2,000 gallons, then four times the amount of solution necessary to make 500 gallons of dip should be prepared, placed in the vat, and the latter filled with water to the 2,000-gallon mark. In case the vat leaks it will be necessary to modify the above procedure by placing the concentrated arsenical solution necessary to fill the vat in barrels and only placing it in the vat when the latter is nearly filled with water, being careful to note, however, that there is ample capacity remaining so that when the solution in the barrel is added the dip surface will not be above the mark to which the vat is to be filled.

The capacity of the vat planned in this circular at a depth of 5 feet 3 inches is 1,470 gallons. In order to fill it to that depth with dip it will be necessary to prepare two batches of concentrated dip each containing the ingredients necessary for making 500 gallons of diluted dip and a third batch containing 7 pounds 9 ounces of arsenic and 22 pounds 3 ounces of sodium carbonate in case 8 pounds of arsenic are being used to the 500 gallons, or 9 pounds 7 ounces of arsenic and 22 pounds 8 ounces of sodium carbonate in case 10 pounds of arsenic are being used to the 500 gallons.

When for any reason it is not convenient to follow the above method of diluting the dip, a stock solution may be prepared in which the quantity of ingredients for 500 gallons of diluted dip are dissolved in 50 gallons of water. Nine parts of water to 1 part of this stock solution will then give the proper dilution. The stock solution is found very convenient for replenishing the dip in a vat when it has become too low for dipping. A stock solution should not be made in more concentrated form than that given (50 gallons of stock for 500 gallons of dip), as the pine tar does not remain properly mixed when the solution is too concentrated.

The arsenical dip may be left in the vat and used repeatedly, replenishing it with the proper quantities of water and stock solution when necessary. When, however, the dip becomes filthy through the addition of manure and dirt carried in by the cattle, the vat should be emptied, cleaned, and filled with fresh fluid. The frequency with which this should be done must be left to the owner, as the condition of the dip at any period after it has been made depends on a variety of conditions, such as the number of cattle dipped, the frequency of the dippings, etc. Even though the dip may not become very filthy, its efficiency decreases somewhat on standing, owing to gradual oxidation of the arsenic. It is therefore advisable to recharge the vat if the dip is more than a month or six weeks old irrespective of its condition as to cleanliness.

At the conclusion of each dipping it is well to mark the position of the surface of the dip on the side of the vat in order to determine at the next dipping whether there has been a change in the level of the dip. If the surface of the dip has fallen and it is known that the vat does not leak, there has been a loss of water by evaporation and consequently an increase in the strength of the dip. In order to bring the dip down to its former strength water should be run into the vat until the dip surface reaches the mark made at the last dipping. If the fall has been due to the vat leaking, the strength of the dip has not been altered and consequently water alone should not be added. If the dip surface has been raised by rain the amount of water added in this way should be determined by calculation, and for every nine gallons of water one gallon of the stock solution previously mentioned should be used.

When not in use the vat should be tightly covered with a waterproof cover to prevent evaporation on the one hand and further dilution by rain on the other hand. Securely covering the vat when not in use also lessens the risk of accidental poisoning of stock and human beings.

PRECAUTIONS IN THE USE OF ARSENIC.

On account of the fact that arsenic is a dangerous poison, great care must be observed in making and using the arsenical dip. From the time the arsenic is procured from the druggist until the last particle of unused residue is properly disposed of, the most scrupulous care should be taken in handling it. Guessing at weights or

measures or carelessness in any particular is liable to result in great damage, and not only may valuable live stock be destroyed, but human beings may lose their lives as well.

Persons using the dip should bear in mind the possibility of absorbing arsenic through cuts, scratches, or abrasions of the skin and also by inhalation of vapors from the boiler in which the dip is prepared. It should be remembered that the absorption of even very small quantities of arsenic, if repeated from day to day, is liable ultimately to result in arsenical poisoning.

Cattle should always be watered a short time before they are dipped. After they emerge from the vat they should be kept on a draining floor until the dip ceases to run from their bodies; then they should be placed in a yard free of vegetation until they are entirely dry. If cattle are allowed to drain in places where pools of dip collect, from which they may drink, or are turned at once on the pasture, where the dip will run from their bodies on the grass and other vegetation, serious losses are liable to result. Crowding the animals before they are dry should also be avoided, and they should not be driven any considerable distance within a week after dipping, especially in hot weather. If many repeated treatments are given the cattle should not be treated oftener than every two weeks.

In addition to properly protecting vats containing arsenical dip when not in use, another precaution must be observed when vats are to be emptied for cleaning. The dip should not be poured or allowed to flow on land and vegetation to which cattle or other animals have access. The best plan is to run the dip into a pit properly protected by fences, and the dip should not be deposited where it may be carried by seepage into wells or springs which supply water used on the farm.

The above precautions are given to inform persons not familiar with arsenic of its poisonous nature and the care that should be observed in its use, and to stimulate a proper care in those who know its poisonous nature and yet might be careless or who may not know all the precautions that should be observed. Unfortunately, however, the giving and emphasizing of such precautions have had the effect of arousing unwarranted fear of arsenic on the part of some stockmen and farmers, and have caused them, for a time at least, to refuse to undertake its use in treating cattle for ticks. For the bene-

fit of those who may unduly fear arsenic because of what has been said, it should be stated that where reasonable care is observed in following the precautions given there is little danger of losses occurring. The arsenical dip has been extensively used during the past five years in tick-eradication work in the tick-infested area, and considering the number of cattle that have been dipped the losses have been very small. Some of these have been definitely traced to carelessness, and there is little doubt that if it had been possible to investigate all losses the majority of them would have been found to be due to this cause.

METHOD OF DIPPING.

The procedure to be followed in dipping animals on a farm depends on the end that is sought in undertaking the treatment. If it is simply desired to reduce and keep down the infestation of ticks on a farm, it will only be necessary for the owner to keep his animals under observation and dip them when, according to his judgment, treatment is necessary to keep the ticks under control. Such a procedure may well be followed where the regular tick eradication is not under way; that is, in instances in which it is not yet practicable or expedient to rid farms completely of ticks.

If, however, it is desired to rid the farm completely of ticks—and this should be the purpose in every case in which it is practicable and expedient—it will be necessary to dip all cattle, and also any horses, mules, or asses that may harbor the cattle tick, at regular intervals until all ticks have disappeared from the farm. The purpose of such dipping is to prevent as nearly as possible any engorged females dropping to the pasture and there laying eggs which in time may develop into young ticks. In order to do this it is necessary to dip at intervals short enough so that no tick after getting on the cattle will have time to mature and drop off before the next dipping. An interval between dippings of two weeks is considered most satisfactory. This interval, however, may be increased somewhat if necessary, but it should never be greater than three weeks.

In freeing a farm of ticks the dipping should not be discontinued until it has been determined with certainty that the cattle and premises are free of ticks. It should be borne in mind that it is almost impossible to determine by a few inspections, even if carried out with great care, that animals are free from ticks. If the treatment

is discontinued and a few unobserved ticks are still on the animals, these, on maturing and dropping, are likely to give rise to a new brood of young ticks. Moreover, even if the cattle are actually free of young ticks. Moreover, even if the cattle are actually free from ticks, the fact should not be lost sight of that there may still be engorged females, eggs and seed ticks on the premises. This is most likely to be the case during the colder part of the year when the development of the tick on the ground progresses slowly and also when any seed ticks that may be present are likely to be slow in reaching the cattle because of inactivity resulting from the low temperature.

SPECIFICATIONS FOR THE CONSTRUCTION OF A CONCRETE CATTLE-DIPPING VAT.

SITE.

The site selected for the location of the vat should be dry and of sufficient size to admit of the construction of the chute, the dripping pen, and at least two additional pens—one for holding the cattle prior to dipping and the other for retaining them after dipping until sufficiently dried.

EXCAVATION.

The excavation should be made 1 foot wider and 1 foot longer than the inside dimensions of the vat and should conform to its shape. The inside dimensions of the vat are shown on the drawings (fig. 1) and are as follows: Length at top of vat, 26 feet; bottom, 12 feet. Width at top, 3 feet; at bottom, 1½ feet. Depth, 6½ feet.

The sides and bottom of the excavation should be firm and solid, as they are to serve for the outside forms in casting the concrete. If it is necessary to do any filling in order to conform to the shape of the vat, the filling should be puddled and thoroughly rammed until solid, because the stability of the concrete depends on the foundation.

FORMS.

The wooden forms should be constructed of 1-inch boards and 2 by 4 inch braces, the boards being nailed to the outside face of the braces, as shown in the drawings. The sides and end walls should be built 8 inches higher than the surface of the ground, which should be level.

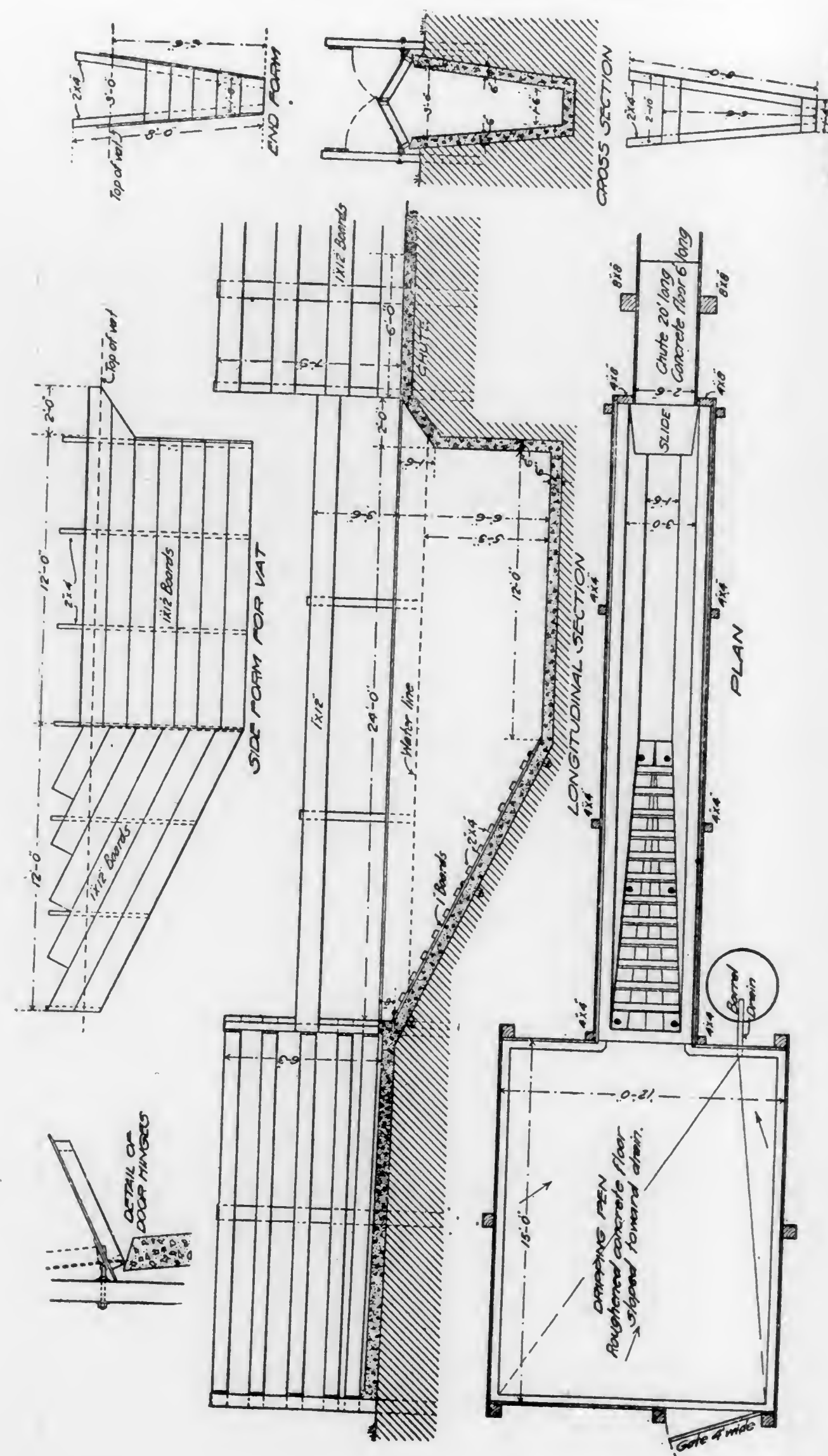


FIG. 1.—Plans for a concrete dipping vat.

CONCRETE.

The concrete should be made of 1 part of cement, by measure, $2\frac{1}{2}$ parts of sand, and 5 parts of broken rock or gravel. The cement should be of a standard brand of Portland, the sand clean and coarse, and the broken rock from about $\frac{1}{4}$ -inch pieces to not larger than will pass in every direction through a 1-inch ring.

Mixing.—The mixing should be done on a tight wooden platform or in a tight box. The sand and stone should be measured in a bottomless box, $2\frac{1}{2}$ feet long by 2 feet wide by 1 foot deep, having a capacity of 5 cubic feet. A convenient size of batch to mix is one consisting of 2 bags of cement, 1 measure (5 cubic feet) of sand, and 2 measures (10 cubic feet) of stone.

The sand is measured out first and the cement emptied on top, after which the two materials are thoroughly mixed together, dry. In the meantime the stone may be measured out and thoroughly drenched with water. The cement-sand mixture is mixed with water and the resulting mortar then combined with the stone. The stone should be shoveled on the mortar, which has been previously spread out in a thin layer. Mixing should continue until the stone is thoroughly coated with mortar, more water being added during the mixing process if necessary.

Laying.—Before laying the concrete the molds should be set and thoroughly braced into place. The side forms may be suspended in the excavation with their lower edges 6 inches from the bottom by means of crosspieces nailed to the uprights and of sufficient length to rest on supports located several feet from the edges of the excavation. The concrete for the bottom and incline is deposited first, this mixture being of a consistency that water will flush to the surface on ramming. The mixtures for the sides and end should be very wet and should be thoroughly puddled into place. The consistency of the concrete for the side walls should be such that it will run off the shovel unless handled quickly.

The laying of the concrete should be done, if possible, in one operation, in order that there may be no joints between the new and old work. If it becomes necessary to lay the concrete on two or more days the surface on which the new concrete is to be deposited should be washed thoroughly clean and coated with grout of pure Portland cement and water mixed to the consistency of cream. The

new concrete should be placed before the grout has set. Extreme care should be taken to prevent dirt from falling in on top of the deposited concrete.

The forms should not be removed until the concrete is set, which in moderate weather will have taken place in about 24 hours. In damp, cold weather at least 48 hours should be allowed before removing the forms. It will be advisable, especially in water-soaked ground, to allow the forms to remain in place for one week before removal.

Finishing Coat.—Before applying the surface coat dampen the walls and floor thoroughly. Cover the entire exposed surface of the floor and walls with a coating one-half inch thick of cement mortar composed of Portland cement 1 part, sand 2 parts. Coating to be floated and troweled to a smooth finish.

WATERPROOFING.

If the earth around the vat is thoroughly drained the vat may be waterproofed by painting the surface coat, but painting the surface will not give satisfactory results if there is ground water to seep in. The paint may be good hot pine tar, or gas-house tar cut with naphtha or gasoline and applied with a brush, or after the mortar coat has hardened the inside of the vat may be painted with an oil-cement paint made as follows: * Mix enough water with Portland cement to make a fairly stiff paste; add to this 5 per cent of heavy petroleum residuum oil based on the weight of the cement, and mix thoroughly until the oil entirely disappears, then add more water and stir until a paint of the consistency of cream is formed. This paint should be applied with a brush and should be well rubbed into the surface. Should the mortar coat be omitted the paint coat should be applied directly to the surface of the concrete.

EXIT INCLINE.

As the exit incline is to have a false wooden floor, it will be necessary to embed iron bolts in the concrete, to which the wooden floor may be fastened. Before the concrete incline is laid embed in the

*These directions for the oil-cement paint are furnished by the Office of Public Roads of the United States Department of Agriculture.

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The laying of the concrete should be done, if possible, in one operation, in order that there may be no joints between the new and old work. If it becomes necessary to lay the concrete on two or more days the surface on which the new concrete is to be deposited should be washed thoroughly clean and coated with grout of pure Portland cement and water mixed to the consistency of cream. The

new concrete should be placed before the grout has set. Extreme care should be taken to prevent dirt from falling in on top of the deposited concrete.

The forms should not be removed until the concrete is set, which in moderate weather will have taken place in about 24 hours. In damp, cold weather at least 48 hours should be allowed before removing the forms. It will be advisable, especially in water-soaked ground, to allow the forms to remain in place for one week before removal.

Finishing Coat.—Before applying the surface coat dampen the walls and floor thoroughly. Cover the entire exposed surface of the floor and walls with a coating one-half inch thick of cement mortar composed of Portland cement 1 part, sand 2 parts. Coating to be floated and troweled to a smooth finish.

WATERPROOFING.

If the earth around the vat is thoroughly drained the vat may be waterproofed by painting the surface coat, but painting the surface will not give satisfactory results if there is ground water to seep in. The paint may be good hot pine tar, or gas-house tar cut with naphtha or gasoline and applied with a brush, or after the mortar coat has hardened the inside of the vat may be painted with an oil-cement paint made as follows: * Mix enough water with Portland cement to make a fairly stiff paste; add to this 5 per cent of heavy petroleum residuum oil based on the weight of the cement, and mix thoroughly until the oil entirely disappears, then add more water and stir until a paint of the consistency of cream is formed. This paint should be applied with a brush and should be well rubbed into the surface. Should the mortar coat be omitted the paint coat should be applied directly to the surface of the concrete.

EXIT INCLINE.

As the exit incline is to have a false wooden floor, it will be necessary to embed iron bolts in the concrete, to which the wooden floor may be fastened. Before the concrete incline is laid embed in the

*These directions for the oil-cement paint are furnished by the Office of Public Roads of the United States Department of Agriculture.

dirt three pieces of 2 by 4 inch scantling, placed at the top, center, and bottom of the incline. The bolts should extend through these pieces and should be placed with the head next to the dirt. The bolts should be long enough to extend through the concrete and the inch boards of the floor, so that the wooden floor may be securely fastened.

SLIDE.

Cover the slide with a sheet of boiler iron properly fastened to the cement.

COVER.

The cover of the vat consists of two leaves hinged on posts set 3 feet in the ground along each side of the vat. The leaves are 2 feet 6 inches wide, and when open rest against the upper part of the posts to which they are hinged and serve as splash boards. The details of the hinge* used and the method of setting it are shown in the drawings. When the leaves are open their lower edges are just above the top of the side walls, which are given a slope inward for the purpose of conducting the dip running from the splash boards back into the vat. Removable doors should be constructed to close the triangular openings left at the ends of the vat when the cover is closed. The hinges may be made by a blacksmith.

DRIPPING PEN.

Construct a dripping pen about 12 by 15 feet at the head of the exit incline. The floor should be of concrete prepared as previously described for the vat and laid in a similar manner. The floor should be pitched toward a corner of the pen, where a pipe should be laid in the floor to carry the drippings into a barrel sunk in the ground. The drippings thus caught may be returned to the vat after settling. The floor should be roughened to prevent the cattle from slipping.

CHUTE.

The chute leading to the vat should be built 30 inches wide and 20 feet long, and the receiving and retaining pens should be of a size to take care of the animals to be dipped.

*This hinge and the method of setting it for the cover of a dipping vat have been copied from an article by William Taylor Heslop in the Agricultural Journal of the Union of South Africa, Pretoria, vol. 1, No. 1, 1911, pp. 38-43.

BILL OF MATERIALS FOR VAT, DRIPPING PEN, AND CHUTE.

LUMBER FOR FORMS

8 pieces 1 by 12 inches by 14 feet long.
13 pieces 1 by 12 inches by 12 feet long.
2 pieces 1 by 12 inches by 9 feet long.
2 pieces 1 by 12 inches by 6 feet long.
2 pieces 1 by 12 inches by 4 feet long.
8 pieces 2 by 4 inches by 8 feet long.
2 pieces 2 by 4 inches by 7 feet long.
2 pieces 2 by 4 inches by 6 feet long.
2 pieces 2 by 4 inches by 4 feet long.
2 pieces 2 by 4 inches by 2 feet long.
7 pieces 1 by 6 inches by 12 feet long for crosspieces for inside of forms.

LUMBER FOR DRIPPING PEN.

7 pieces 6 by 6 inches by 10 feet long for posts.
10 pieces 1 by 8 inches by 16 feet long for side rails of pen.
5 pieces 1 by 8 inches by 12 feet long for side rails of pen.
5 pieces 1 by 8 inches by 8 feet long for side rails of pen.

The covers can be made from the lumber used in making the forms, and the lumber for the exit incline can be gotten in the same way.

The 4 by 4 inch posts to which the cover is hinged may be made from 2 by 4 stuff by spiking together.

End form to be made solid.

HARDWARE AND IRONWORK.

6 bolts, $\frac{1}{2}$ by 10 inches, with nuts and washers, for false floor of incline.
1 sheet of $\frac{1}{4}$ -inch boiler iron cut to shape of slide; plate bored and countersunk for four screws.
4 pairs hinges for covers.
3 heavy T hinges and screws for gate of dripping pen.
1 heavy iron bolt to fasten gate.

CONCRETE.

VAT.

Cement, $10\frac{1}{2}$ barrels (42 bags).
Sand, $3\frac{3}{4}$ cubic yards.
Stone, $6\frac{1}{4}$ cubic yards.

DRIPPING PEN AND CHUTE

Cement, $5\frac{1}{2}$ barrels (22 bags).
Sand, $1\frac{3}{4}$ cubic yards.
Stone, $3\frac{1}{2}$ cubic yards.

A 26-foot vat has been used extensively for eradication purposes with satisfactory results. However, if it is desired to lengthen the body of the vat on account of large numbers of cattle to be treated, or to make it conform to the bureau's requirements for the treatment of cattle for movement as noninfectious, there should be added to the amount of concrete material for each lineal or running foot, cement, 0.37 barrel; sand, 0.12 yard; stone, 0.24 yard.

By some a dripping chute is regarded more satisfactory than a dripping pen. One of the advantages that it has is that the cattle are held in line in the order in which they have been dipped, thus making it possible to remove one or more of them at a time as soon as they have drained sufficiently, in order to make room for others. In using the dripping pen this is not practicable and it is necessary to wait until the last animal dipped has drained sufficiently and then remove them all together.

In case it is desired to construct a dripping chute it should be located at the head of the exit incline in line with the vat. It should be about 36 inches wide. The length will depend on the number of cattle it is desired to accommodate at one time, it being necessary to allow 4 to 5 feet for each. A length of from 20 to 40 feet is considered a convenient size for small herds. The floor should be made of concrete and sloped toward the vat. The dip should not be permitted to run directly into the vat, but should be collected in a barrel to settle, as shown in the case of the dripping pen. The floor at the sides should be raised about 2 inches in the form of a curb to keep the dip from running off.

The following companies quote prices on arsenic, sal-soda and pine tar, used in the preparation of the standard arsenic solution for dipping and spraying cattle to destroy ticks; F. O. B. point of shipment:

Gulf Pine Product Company, J. T. Myers, President, Waycross, Ga., quote:

Pine tar, barrel lots, 45 to 50 gallons in barrel, \$5.00 per barrel.

Columbia Drug Company, Savannah, Ga., quote: Arsenic, 7 and 8 cents per pound; sal-soda from 1 to 1¼ cents per pound, depending on quantity. Pine tar quoted on application, depending on quantity.

The Groover-Stewart Drug Company, Jacksonville, Fla., quote:

Arsenic trioxide in 71-lb. lots (enough for three fillings of vat) 8 cents per pound; sal-soda in 211-lb. lots (for three vats) at 2 cents per pound.

Following is the quotation from the Tampa Drug Co.:—"Arsenic, in kegs, 5½c; Sal Soda, per bbl., 1¼c; Pine Tar, bbls. per gal. 35c, f. o. b. New York." Pine tar has been quoted locally (Tampa) at 27c.

Following is the quotation from the Phoenix Supply Co., of Atlanta, Ga.:—"Sal Soda in bbls. at 1c per pound f. o. b. Atlanta."

DISEASES IN SWINE.

The only disease brought to the attention of this division and worthy of mention in this report was hog cholera, which, since the advent of a protective serum, has, in some instances, assumed an unwarranted importance because of the tendency to regard every ailment of the hog as hog cholera.

As this disease has already been fully described in Publication No. 89, January, 1912, there is no good reason for a repetition of what was said in that publication.

It is important, however, to bring to notice an experiment carried out to determine the question of the spread of hog cholera by buzzards. This experiment was conceived by Dr. Hiram Byrd, Assistant State Health Officer, who later kindly invited the writer to assist him. The notes on that experiment, as furnished by Dr. Byrd, are as follows:

TRANSMISSION OF HOG CHOLERA BY BUZZARDS.

"The question has often been raised as to whether buzzards transmit hog cholera. It is known for example that chickens feeding on hookworm infected excreta leave a train of hookworm eggs in their wake. It is reasoned that buzzards feed upon carcasses of animals dead of hog cholera, and is it not likely that they then leave the hog cholera infection in their wake transmitted through infected feces. It can easily be seen that if the feces of a buzzard after feeding on a carcass that has died of hog cholera are infected he can spread it in pastures that he chances to fly over.

"To determine whether the feces of buzzards are infected and capable of transmitting hog cholera was the problem set.

"Two buzzards were captured—*Cathartes aura* and *Catharistes atrata*. This was in July. One of them died in confinement. The other, *Catharistes atrata*, fed and prospered.

"Ten pigs that had had cholera were placed in pens and an

outer pen of wire made around this. There was no cholera in the community at the time.

"Hog cholera virus was procured from one of the commercial houses and one of the pigs taken from the pen to the laboratory, three miles away, and inoculated, October 23. This was Pig No. 1. On November 7th this pig had shown no evidence of hog cholera and pig No. 2 was inoculated. November 15th pig No. 1 was drooping, eyes glued together, and appetite off. November 21st, pig No. 1 died. Post mortem examination showed chronic hog cholera lesions. Death having taken place on the 28th day of the inoculation. This was not considered sufficiently virulent to use.

November 23rd. Pig No. 2 not being sick, pig No. 3 was inoculated with dried virus. Nov. 30th No. 3 died. Autopsy showed chronic peritonitis, but no evidence of hog cholera. But November 25th, Dr. Dawson found an accute outbreak of hog cholera near Mandarin. A dead pig was brought in, and placed in refrigerator. The virulence of this was proven by its ability to kill pigs in ten days. For three days now the buzzard was given nothing but the meat of this pig. Finally a shoulder was thoroughly injected with the blood of the same pig, and fed to the bird. He ate at 2 p. m. At 5 p. m. he was decapitated. In order to avoid accidental contamination the buzzard was opened, the intestine removed, and the contents of the lower third collected in a bottle. This was diluted with normal salt solution up to one ounce. The same afternoon, December 2nd, pig No. 4 out at the pen was fed one fourth of this mixed with "pet cream" which he readily devoured. This pig was now kept separate from the others. Five days later the other portion mixed with grain was fed to the other pigs. They ate it readily. Eleven days later one of the pigs died. Post mortem showed no evidence of hog cholera, however.

"None of the others have showed any evidence of sickness.

"*Conclusions:* The feces of buzzards, although feeding on virulent hog cholera, are not capable of transmitting the disease."

While in scientific work conclusions are not generally based upon one experiment we are of the opinion that the conclusion reached as a result of the above experiment is fairly conclusive. Especially

are we justified when we note that at the Louisiana Experiment Station similar experiments were made upon the question of buzzards being an agent in the dissemination of other diseases by their excreta. It was shown that spores of anthrax were killed in the intestinal tract of buzzards, but not killed by passage through hogs, dogs, cats and some other animals. As spores of anthrax are the most resistant, live things in nature, it is fair to conclude that the hog cholera germ is also killed during its passage through the intestinal tract of buzzards and that buzzards do not spread hog cholera by means of their excreta.

The experiment, of course, has no bearing upon the question of buzzards carrying the virus of hog cholera upon their feet and other external parts of the body, nor upon the question of buzzards carrying infected lice from hog to hog, nor upon the question of the infectiousness of the vomit of buzzards. All these questions we hope to take up during the coming year.

A report that the serum which the State Board of Health was sending out to farmers did not seem to check the disease, was investigated, and it was found the disease was due to lung worms, and was not hog cholera, at all. In order to get the information of this disease, which we have reason to believe prevails extensively in Florida, to the farmer, and thus save him trouble, and the State much expensive serum, the following publication was issued:

LUNG WORMS AND HOG CHOLERA.

Investigation has shown that sickness and deaths in swine in Florida are frequently due to the presence of worms (*Strongylus Paradoxus*) in the lungs. These worms cause bronchitis and pneumonia or "thumps," or "pants," these latter names being the popular ones.

Agents are therefore requested to determine if the animals are infested with these worms before supplying the hog cholera serum, as this treatment is useless for worms.

As aids to the agent in determining the lung worm disease, a general statement may be made that hog cholera kills hogs of all ages, while lung worms are found causing sickness and death in swine up to about three months of age. If necessary, a pig should be killed to determine the presence of these worms. Remove the

heart and lungs, wash them free of blood and look for bright or pale-red spots at about two inches from the edges of the largest lobes of the lungs. When the worms are very plentiful the affected areas of the lungs may be much larger. They have somewhat the color of the meat of a young calf. Cut through these parts of the lungs and press upon them and you will be rewarded by finding the small, thread-like worms protruding from the air tubes which have been cut across. They vary greatly in size, according to age, from two inches long, down to sizes when they can hardly be seen. When you find this condition existing, do not treat for hog cholera, as your work will be useless, and the results will create dissatisfaction. Of course, lung-worm disease and hog cholera can co-exist. You can determine the presence of hog cholera by a careful reading of the bulletin on hog cholera which has been sent you. If both diseases exist, as shown by the examination of a sick pig that has been killed, or of one that has been found dead, treat for hog cholera and advise the owner to give special attention to the small animals by furnishing them with good feed, and making the animals inhale daily the smoke from burning leather, feathers or rags, or the fumes from tar, creolin or sheep-dip generated by pouring these substances upon hot iron or bricks. As the disease is kept going by pigs remaining on soil they have infested by coughing up the worms and their eggs, it is wise to change their living places frequently, and also the drinking water.

ANTI-HOG CHOLERA SERUM.

There is no question that this serum, properly prepared and used, is the most important means of combating hog cholera. There are so many conditions surrounding its use, however, that there is still much room for improvement. In the majority of cases the serum is being used by persons who do not know whether the disease they are working with is hog cholera or not. The serum is used on hogs already sick with the disease, and is therefore wasted. The dose given may be too small to do any good. The serum may be impotent. There is absolutely no method for the Board to judge the potency of a serum except by a test on hogs before it is sent out. This would involve a still greater expense and would be almost equivalent to our making the serum outright.

As a potent serum can only be made by the use of a highly virulent virus, and as this virus tends to grow weaker after every passage through a hog, manufacturers must ever be on the alert to secure fresh supplies of the most virulent virus from natural outbreaks of hog cholera. Manufacturers make the serum because there is a good profit in it, and as there is no difference in the appearance of potent and impotent sera, a manufacturer might be loth to throw away a large lot of serum that does not test out as being highly potent.

The hog cholera serum is being sold in such large quantities and is so expensive that the Federal Government should exercise the same control over this and all other veterinary biological products as it does over the human biological products. A manufacturer's label stating that all serum is tested for potency before being offered for sale may be true, or it may not be true.

Briefly, the serum is the defibrinated blood of a hog that has, through artificial means, been rendered highly resistant to hog cholera. A hog that has been given an attack of hog cholera and saved from dying by a dose of the protective serum, or a hog that has had a natural attack of hog cholera and has recovered, is injected with all the blood of another hog of its own size, which is dying of acute hog cholera either artificially produced or naturally acquired. The injected hog, or immune hog, now becomes the serum-giving hog, or hyper-immune hog. This hog is bled several times for serum, and right here is a weak spot in the work of serum production. Every time the hog is bled the serum becomes weaker. This should be offset by other injections of strong virus between the bleedings.

Anti-hog-cholera serum can never produce hog cholera, because it does not contain the germ of hog cholera. It is not a vaccine. It is not an antitoxin like diphtheria antitoxin. It is an anti-bacterial serum. It contains, and causes to arise in the bodies of treated hogs that at the same time are exposed to natural infection, substances which are inimical to the growth of the microbe of hog cholera. These substances can only be produced in the bodies of hogs, and therefore, the serum can only be produced from hogs.

The following tables show the serum distribution statistics for the year:

DISTRIBUTION OF HOG CHOLERA SERUM IN FLORIDA IN 1912

County and Month	No. Hogs Immunized	Estimated Weight Hogs	C. C. Serum Sent	C. C. Serum Used	Serum not Accounted for	Cost of Serum	Number of Persons having Hogs Inoculated
Alachua, March	33	2820	3000	830		\$75.00	
Alachua, May	88	4775	1000	460		22.50	
Alachua, June	153	10555	9700	8860		194.00	
Alachua, July	237	8750	6000	3180		120.00	
Alachua, August	148	7580	2000	815		40.00	
Alachua, September	120	7300	4000	1320		80.00	
Alachua, October	173	14895	5500	1600		96.25	
Alachua, November	39	2640	2000			34.00	
Alachua, December			1000	1890		17.00	
Total	991	59315	34200	18955	15245	678.75	37
Baker, June	86	3830	1000	190		20.00	
Baker, July	70	2820	3000	3695		60.00	
Baker, August	623	18860	14000	11945		280.00	
Baker, September	230	7260	2000	2000		40.00	
Baker, October	11	430		800			
Total	1020	33200	20000	18630	1370	400.00	66
Bradford, May			1000			20.00	
Bradford, June	1	225	1000	565		20.00	
Bradford, August	125	3945	5000	2895		100.00	
Bradford, September	32	1095		670			
Total	158	5265	7000	4130	2870	140.00	13
Calhoun, March	107	5560	3000			75.00	
Calhoun, May	155	4650	4000	3325		80.00	
Calhoun, June	318	9495	10000	5675		200.00	
Calhoun, July	375	17600	8000	6705		160.00	
Calhoun, December			10000			17.00	
Total	955	37305	26000	15705	10295	532.00	28
Citrus, April			1000			22.50	
Total			1000		1000	22.50	
Clay, November			3000			51.00	
Total			3000		3000	51.00	1
Columbia, May	40	3645	2000	2000		40.00	
Columbia, July			1000	1000		20.00	
Columbia, September	46	2700	11000	1000		220.00	
Columbia, October	82	10060	8000	2000		140.00	
Total	168	16405	22000	6000	16000	420.00	7

DISTRIBUTION OF HOG CHOLERA SERUM—CONTINUED

County and Month	No. Hogs Immunized	Estimated Weight Hogs	C. C. Serum Sent	C. C. Serum Used	Serum not Accounted for	Cost of Serum	Number of Persons having Hogs Inoculated
DeSoto, April	40	1485	2000	4705		45.00	
DeSoto, May	23	900	2000	1000		40.00	
DeSoto, July	204	11540	3000	1175		60.00	
DeSoto, October	46	3945	3000	1765		60.00	
DeSoto, December				315			
Total	313	17870	10000	8960	1040	205.00	16
Duval, March				330		6.25	
Duval, June			1000	1000		20.00	
Duval, July	9	525		195		3.90	
Duval, September	30	1900		750		15.00	
Duval, November	51	5800	2915	1640		27.88	
Total	90	8225	3915	3915		73.03	8
Escambia, May	619	48440	19000	14710		380.00	
Total	619	48440	19000	14710	4290	380.00	89
Gadsden, April	88	4320	1500			33.75	
Gadsden, May	206	10055	10000	9220		200.00	
Gadsden, June	297	20830	27000	13945		540.00	
Gadsden, July	228	17105	5000	2870		100.00	
Gadsden, August	63	5750	3000	745		60.00	
Gadsden, November	26	2480	2000	1000		34.00	
Total	908	60540	48500	27780	20720	967.75	31
Hamilton, March	49	2250	3000	1000		75.00	
Hamilton, April	103	8940	4000			90.00	
Hamilton, May	424	40180	9000	3145		180.00	
Hamilton, June	449	20170	18000	21025		360.00	
Hamilton, July	139	7420	1000	510		20.00	
Total	1164	78960	35000	25680	9320	725.00	46
Hillsboro, June			2000			40.00	
Hillsboro, November	68	4215	1000	500		16.00	
Hillsboro, December			5000	440		85.00	
Total	68	4215	8000	940	7060	141.00	4
Holmes, April			1500			33.75	
Holmes, May	742	30900	8000	6000		160.00	
Holmes, June	30	1800	800	265		16.00	
Total	772	32700	10300	6265	4035	209.75	37

DISTRIBUTION OF HOG CHOLERA SERUM—CONTINUED

County and Month	No. Hogs Immunized	Estimated Weight Hogs	C. C. Serum Sent	C. C. Serum Used	Serum not Accounted for	Cost of Serum	Number of Persons having Hogs Inoculated
Jackson, March	258	11839	1000			25.00	
Jackson, April	33	1370	5000	1303		112.50	
Jackson, May	682	35730	9000			180.00	
Jackson, June	418	25495	17000	25150		340.00	
Jackson, July	331	15095	7245	7585		144.90	
Jackson, August	229	7320	1000			20.00	
Jackson, September	59	1950	1000	303		20.00	
Jackson, November			1000			16.00	
Total	2010	98799	42245	34345	7900	858.40	60
Jefferson, March	45	1325	3000	1000		75.00	
Jefferson, April			2000			45.00	
Jefferson, May	62	1675	4000	2000		80.00	
Jefferson, June	12	410	5000	290		100.00	
Jefferson, July			2000	4000		40.00	
Jefferson, September	135	16375	1000	1000		20.00	
Total	254	19785	17000	8290	8710	360.00	7
Lafayette, March	147	7970	5000	3073		125.00	
Lafayette, April	315	11505	4000	3000		90.00	
Lafayette, May	69	3670	8000	5700		160.00	
Lafayette, July	152	9310	8000	2745		160.00	
Lafayette, September			4000			80.00	
Lafayette, October			4000			80.00	
Total	683	32455	33000	14518	18482	695.00	21
Lee, June			2000			40.00	
Total			2000		2000	40.00	
Leon, March	70	4300	17000	1000		425.00	
Leon, May	347	16340	2000	1500		40.00	
Leon, June	129	9115	10000	3715		200.00	
Leon, July	44	2670	6000	2000		120.00	
Leon, October	56	4395	2000	1670		35.00	
Total	646	36820	37000	9885	27115	820.00	11
Levy, March	245	4490	1000	1000		25.00	
Levy, April			1000			22.50	
Levy, May	20	910	4000	850		80.00	
Levy, August	86	5155	3000	795		60.00	
Levy, September	149	9710	4000	1000		80.00	
Levy, December	89	7930	3000	4160		51.00	
Total	589	28195	16000	7805	8195	318.50	14

DISTRIBUTION OF HOG CHOLERA SERUM—CONTINUED

County and Month	No. Hogs Immunized	Estimated Weight Hogs	C. C. Serum Sent	C. C. Serum Used	Serum not Accounted for	Cost of Serum	Number of Persons having Hogs Inoculated
Liberty, July	49	1530	5000	2130		100.00	
Liberty, August	57	1410		610			
Liberty, September			4000			80.00	
Total	106	2940	9000	2740	6260	180.00	7
Madison, May			2000	1500		40.00	
Total			2000	1500	500	40.00	1
Marion, April			2000			45.00	
Marion, May	44	2150	5000	700		100.00	
Marion, October	127	11960	3000	1400		60.00	
Total	171	14110	10000	2100	7900	205.00	2
Orange, May	43	2100	1000	960		20.00	
Total	43	2100	1000	960	40	20.00	4
Pinellas, April	61	1685	1000	900	100	22.50	4
Total	61	1685	1000	900		22.50	4
Pasco, March	8	240	500	220		12.50	
Total	8	240	500	220	280	12.50	1
Polk, May	56	2150	1000	800		20.00	
Polk, July	93	7150	2000	1000		40.00	
Polk, August			250			5.00	
Polk, October	49	2400	1000	1000		20.00	
Polk, November	11	1925	5000	3000		87.50	
Total	209	13625	9250	5800	3450	172.50	7
Putnam, May	122	7100	3000	2380		60.00	
Putnam, June	27	1395		610			
Putnam, July	64	3500	1000	1120		20.00	
Putnam, August			2000	935		40.00	
Total	213	11995	6000	5045	955	120.00	9
St. Johns, March	62	4485	1000	570		25.00	
Total	62	4485	1000	570	430	25.00	4
Santa Rosa, April	80	3550	3000	1659		67.50	
Santa Rosa, May	89	4580	4000	490		80.00	
Santa Rosa, June	292	13680	11000	8000		220.00	
Santa Rosa, July	45	2655	2000	1000		40.00	
Total	506	24465	20000	11149	8851	407.50	40

DISTRIBUTION OF HOG CHOLERA SERUM—CONTINUED

County and Month	No. Hogs Immunized	Estimated Weight Hogs	C. C. Serum Sent	C. C. Serum Used	Serum not Accounted for	Cost of Serum	No. of Persons having Hogs In.
Suwannee, April	200	10985	7000	4230		157.50	
Suwannee, May	137	8325	10000	9375		200.00	
Suwannee, June	723	37523	16000	14592		320.00	
Suwannee, July	129	12230	9000	8463		180.00	
Suwannee, August	126	11030	6000	1000		120.00	
Suwannee, September	116	10360		3403			
Suwannee, October	121	9690	7000	6715		122.50	
Suwannee, November	9	1800	2000	1000		34.00	
Suwannee, December			2000			34.00	
Total	1561	101943	59000	48782	10218	1168.00	68
Taylor, April	43	2360	3000	850		67.50	
Total	43	2360	3000	850	2150	67.50	3
Volusia, March	25	945	1000	980		45.00	
Volusia, April	50	1980		505			
Volusia, July	41	2200	1500	980		30.00	
Total	116	5125	2500	2465	35	75.00	1
Wakulla, March			1000			25.00	
Wakulla, April	100	4705	4000	2099		90.00	
Wakulla, May			4000			80.00	
Wakulla, June	256	12285	2000	4130		40.00	
Wakulla, July			2000	200		40.00	
Wakulla, October			4000			70.00	
Total	356	16990	17000	6429	10571	345.00	21
Walton, April			3000			67.50	
Walton, May	34	640	3000	6070		60.00	
Walton, June	235	18685	9000	8030		180.00	
Walton, August	244	10345	6000	4310		120.00	
Walton, November	62	2490	2000	1250		34.00	
Total	575	32160	23000	19660	3340	461.51	23
Washington, March	87	5460	4000	3090		100.00	
Washington, April	117	5010	9500	3090		213.75	
Washington, May	743	32750	14000	14000		280.00	
Washington, June			12000	11725		240.00	
Washington, July			2000			40.00	
Washington, August	10	345	1000	205		20.00	
Total	957	48565	42500	32110	10390	893.75	32
Grand Totals	16395	895282	601910	367793	234117	\$12253.43	723

FREE DISTRIBUTION OF SERUM.

Free serum has proven, during the year 1912, to be a very expensive proposition for the State. As can be learned from the foregoing tables, 723 owners received 601,910 cubic centimeters of serum (about 620 quarts), which cost for serum, not including express charges and expenses incidental to shipping, \$12,253.43. The number of hogs treated was 16,395 and their estimated weight was 895,282 pounds. Only a little more than half the serum sent out was reported upon by the owners.

If 700 owners require serum to the value of \$12,000.00, it is easy to figure that the 50,000 farmers of the State would require about \$857,000.00 worth of serum.

At the same rate it will cost the State \$17,140.00 per thousand owners to furnish free serum for the year 1913, or an average of \$17.14 worth to each owner.

The total assessed valuation of property including railroad, telegraph and other public utilities, for 1911, was \$196,805,441. It is now probably \$200,000,000. The tax rate per \$1,000.00 is \$7.50. This yields \$1,500,000.00. There are about 800,000 hogs in Florida, and the average cost was 75 cents per head for serum in 1912. It would therefore cost \$600,000.00 to treat every hog in Florida. More interesting, because it comes nearer representing the true condition, is that if, as our statistics show, it cost \$12,000.00 to save 896,000 pounds of hog, what did each pound of live hog cost? Answer, 1.43 cents.

In this connection it is important to know what our sister States are doing for their hog industry. They all, in recognition of the immensity of the proposition are, when they have anything at all to do with it, furnishing the serum at cost price, 2 cents per cubic centimeter.

Reduction of losses from hog cholera can be brought about in other ways than by the use of the serum.

Hog raisers should make a special point of separating the sick from the well and promptly burying the dead ones, as this would

lessen infection by contact between the sick and the well, and also prevent buzzards from carrying the disease on their feet and feathers and probably in their vomitus.

A hog that is evidently going to die should be promptly killed and buried. By carrying out these simple measures, it is highly probable many hogs would escape the infection.

REPORT OF J. W. DEMILLY, ASSISTANT VETERINARIAN.

Tallahassee, Florida., January 1, 1913

DR. JOSEPH Y. PORTER,

State Health Officer, Jacksonville, Fla.

DEAR DOCTOR: I respectfully submit herewith a report of my work as assistant veterinarian for the year nineteen hundred and twelve.

In addition to my report of administration of serum, I appointed the following agents:

Alachua County, Gainesville, Dr. E. R. Flint.
 Alachua County, Newberry, Mr. J. B. Smith.
 Bradford County, Starke, Mr. Theo. Tison.
 Calhoun County, Blountstown, Mr. J. L. Griffin.
 Columbia County, Lake City, R. F. D. 5, Mr. P. G. Brown.
 Columbia County, Fort White, Dr. Rivers.
 Clay County, Green Cove Springs, Dr. J. L. Chalker.
 Citrus County, Hernando, Dr. Puterbaugh.
 De Soto County, Fort Green, Dr. C. A. Gavin.
 Escambia County, Pine Barren, Mr. W. H. Johnson.
 Escambia County, Atmore, Ala., Mr. J. L. Godwin.
 Gadsden County, Quincy, Mr. J. B. Ball.
 Gadsden County, Havana, Mr. E. McCorquodale.
 Hamilton County, Jasper, Dr. J. H. Corbett.
 Hamilton County, Lake Park, Ga., Mr. John Colson.
 Holmes County, Westville, Dr. D. G. Milton.
 Hillsborough County, Thonotosassa, Mr. T. Groves.
 Jackson County, Marianna, Dr. J. G. Phillips.
 Jackson County, Inwood, Mr. W. W. Webster.
 Jackson County, Sneads, Mr. A. J. Brunson.
 Jackson County, Grand Ridge, Mr. A. M. Singletary.
 Jackson County, Jacob, Dr. M. W. Eldridge.
 Jefferson County, Lamont, Dr. W. H. Walker.
 Jefferson County, Lloyds, Mr. S. V. Coxetter.
 Jefferson County, Monticello, Mr. G. C. McCall.
 Jefferson County, Aucilla, Dr. W. N. McLeod.
 Leon County, Tallahassee, Mr. Tom Atkinson.
 Levy County, Raleigh, Mr. W. E. Brown.
 Levy County, Bronson, Mr. G. A. Boyd.
 Levy County, New Town, Mr. S. S. Smith.
 Madison County, Ebb or Sirmans, Mr. A. B. Sever.
 Marion County, Ocala, Dr. J. H. Dunn.
 Orange County, Orlando, Dr. B. D. Wienenga.
 Polk County, Lakeland, Dr. D. P. Carter.
 St. Johns County, Elkton, Dr. F. S. Whitney.
 Santa Rosa County, Milton, Mr. J. W. Erquahart.

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 Polk County, Lakeland, Dr. D. P. Carter.
 St. Johns County, Elkton, Dr. F. S. Whitney.
 Santa Rosa County, Milton, Mr. J. W. Erquahart.

Santa Rosa County, Milligan, Mr. J. R. Miller.
 Suwannee County, Wellborn, Mr. A. S. Hogan.
 Taylor County, Perry, Mr. Barney O'Quinn.
 Walton County, De Funiak Springs, Prof. H. J. Rogers.

Very truly yours,

J. W. DE MILLY,
Assistant Veterinarian.

DETAILS AND WORK ACCOMPLISHED IN THE ADMINISTRATION OF HOG CHOLERA
 SERUM.

1912.	County.	Town.	No. of Hogs Immunized.	C. C. of Serum Used.
Jan. 5	Leon	Holland	40	860
Jan. 17	Levy	Williston	31	960
Jan. 17	Levy	Williston	67	2050
Jan. 19	Duval	Jacksonville	7	280
Jan. 22	Leon	Tallahassee	4	85
Jan. 23	Leon	Tallahassee	15	510
Jan. 25	Leon	Tallahassee	62	1500
Jan. 27	Hamilton	Belleville	115	3000
Jan. 28	Alachua	Newberry	75	1600
Jan. 30	Bradford	Hampton	8	350
Feb. 1	Taylor	Perry	16	480
Feb. 1	Taylor	Perry	86	2000
Feb. 1	Taylor	Perry	10	200
Feb. 1	Taylor	Perry	4	160
Feb. 2	Leon	Tallahassee	27	700
Feb. 3	Jefferson	Monticello	21	500
Feb. 8	Taylor	Perry	14	300
Feb. 8	Taylor	Perry	10	300
Feb. 8	Taylor	Perry	22	480
Feb. 8	Taylor	Perry	5	130
Feb. 8	Taylor	Perry	13	260
Feb. 8	Taylor	Perry	33	550
Feb. 8	Taylor	Perry	12	300
Feb. 8	Taylor	Perry	22	380
Feb. 8	Taylor	Perry	19	440
Feb. 9	Lafayette	Mayo	18	360
Feb. 9	Lafayette	Mayo	23	600
Feb. 9	Lafayette	Mayo	20	500
Feb. 14	Sumter	Oxford	44	1100
Feb. 14	Sumter	Oxford	10	200
Feb. 14	Sumter	Oxford	9	190
Feb. 14	Leon	Tallahassee	4	160
Feb. 15	Gadsden	Midway	29	660
Feb. 15	DeSoto	Wauchula	17	355
Feb. 15	DeSoto	Wauchula	8	170
Feb. 15	DeSoto	Wauchula	25	475
Feb. 15	DeSoto	Wauchula	18	420
Feb. 15	DeSoto	Wauchula	25	560
Feb. 15	DeSoto	Wauchula	22	460
Feb. 15	DeSoto	Wauchula	30	590

Feb. 20	Jackson	Grand Ridge	32	450
Feb. 20	Jackson	Grand Ridge	102	2220
Feb. 20	Jackson	Grand Ridge	4	100
Feb. 20	Jackson	Grand Ridge	9	155
Feb. 22	Calhoun	Blountstown	99	2070
Feb. 22	Calhoun	Blountstown	13	225
Feb. 24	Washington	Chipley	19	350
Feb. 27	Bradford	Hampton	8	180
Feb. 27	Bradford	Hampton	16	340
Mar. 1	Levy	Montbrook	155	2600
Mar. 1	Levy	Williston	43	1000
Mar. 5	St. Johns	Elkton	14	300
Mar. 5	St. Johns	Elkton	30	650
Mar. 7	Hamilton	Jasper	30	590
Mar. 8	Jefferson	Monticello	39	770
Mar. 10	Jackson	Grand Ridge	25	570
Mar. 10	Jackson	Grand Ridge	31	700
Mar. 10	Jackson	Grand Ridge	27	395
Mar. 10	Jackson	Grand Ridge	5	90
Mar. 11	Jackson	Cypress	18	335
Mar. 11	Jackson	Grand Ridge	27	610
Mar. 12	Calhoun	Blountstown	15	380
Mar. 12	Calhoun	Blountstown	29	550
Mar. 12	Calhoun	Blountstown	41	1095
Mar. 12	Calhoun	Blountstown	27	495
Mar. 14	Jackson	Sneads	10	205
Mar. 14	Jackson	Sneads	66	1290
Mar. 14	Jackson	Sneads	32	650
Mar. 14	Jackson	Sneads	18	325
Mar. 16	Gadsden	Hinson	15	420
Mar. 16	Gadsden	Hinson	36	695
Mar. 16	Gadsden	Hinson	14	200
Mar. 19	Taylor	Perry	13	285
Mar. 19	Taylor	Perry	47	1260
Mar. 19	Taylor	Perry	92	2008
Mar. 25	Leon	Tallahassee	23	580
Mar. 29	Levy	Raleigh	70	1900
Apr. 3	Santa Rosa	Milligan	23	570
Apr. 3	Santa Rosa	Cobb	10	170
Apr. 12	Suwannee	Wellborn	6	150
Apr. 12	Suwannee	Wellborn	26	550
Apr. 28	Escambia	Atmore, Ala.	12	295
Apr. 28	Santa Rosa	Milton	9	300
May 1	Leon	Tallahassee	18	425
May 8	Columbia	Brown	18	430
May 11	Gadsden	Havana	40	1100
June 8	Jefferson	Lloyds	6	210
June 11	Gadsden	Quincy	84	2350
June 25	Leon	Tallahassee	37	790
June 30	Citrus	Hernando	45	1050
			7	130

July	8	Hamilton	Lake Park, Ga. -----	44	1025
Aug.	2	Alachua	Archer -----	35	775
Aug.	2	Alachua	Archer -----	9	210
Aug.	8	Jackson	Jacob -----	60	1385
Sept.	12	Leon	Tallahassee -----	53	1510
Sept.	13	Leon	Tallahassee -----	3	160
Oct.	15	Alachua	Gainesville -----	63	2105
Oct.	16	Columbia	Fort White -----	10	405
Oct.	17	Columbia	Fort White -----	49	1565
Oct.	17	Columbia	Fort White -----	18	425
Oct.	17	Columbia	Fort White -----	15	475
Oct.	31	Marion	Ocala -----	117	3800
Nov.	4	Polk	Lakeland -----	11	440
Nov.	6	Hillsboro	Thonotosassa -----	7	200
Nov.	6	Hillsboro	Thonotosassa -----	31	785
Nov.	6	Hillsboro	Thonotosassa -----	19	515
Dec.	2	Levy	Bronson -----	19	515
Totals -----				3238	77028

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